

In memory of William Johnson M.B.E.

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Faculteit Letteren & Wijsbegeerte

Rachel Nye

How complement clauses distribute:

complementiser-*how* and
the case against clause-type

Proefschrift voorgelegd tot het behalen van de graad van
Doctor in de taalkunde
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This story begins on an otherwise unremarkable Friday afternoon in June when, sitting in an internet café in Munich (this tale being situated in the historic pre-laptop era of 2008), I opened my email account to find a message from none other than Professor Liliane Haegeman, ‘a world-famous syntactician, the kind who wrote the textbooks we used at uni!’ as I reported excitedly via email to my parents at the time. The content of her email was a description of the research group which she was in the process of setting up in Ghent, and a query as to whether I would potentially be interested in a PhD position to work on the cartography project she was starting up. Several emails and an interview in a London train-station café later (the latter complete with syntactic trees made from sugar sachets), and it was agreed: I would move to Ghent in the autumn of 2009, and become a member of what at that stage wasn’t yet known as GIST (Generative Initiatives in Syntactic Theory).

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Chapter 1 Introduction

1.1 How complement clauses distribute

A core element of linguistic research involves identifying natural classes amongst linguistic data. At the clausal level, there is a long history of distinguishing different types of clause on the basis of empirical observation of their syntactic and semantic properties. Clause-types such as declarative, interrogative and exclamative are now well-established for the root domain (1) and, to a lesser extent, for the embedded domain (2).

- | | |
|---|-----------------|
| (1) a. He broke it. | [declarative] |
| b. Who broke it? | [interrogative] |
| c. What a lot of things were broken! | [exclamative] |
| | |
| (2) a. They told me [that he broke it]. | [declarative] |
| b. They asked [who broke it]. | [interrogative] |
| c. They told me [what a lot of things were broken]. | [exclamative] |

The apparent relevance of clause-type information for linguistic processes, such as the selection of embedded clauses by matrix predicates, suggests that these categories do not simply represent a useful classificatory device imposed on the data by linguists, but rather reflect syntactically and/or semantically relevant distinctions in the grammar. The traditional picture painted is that predicates such as *think* permit only declarative complements (3), whilst predicates such as *wonder* permit only interrogative complements (4), with predicates such as *forget* permitting all three clause-types (5).

- | | |
|---|------------------|
| (3) a. Alex thought [that Stevie lived in Spain]. | [declarative] |
| b. * Alex thought [why Stevie lived in Spain]. | [*interrogative] |
| c. * Alex thought [what a lot of time Stevie had spent in Spain]. | [*exclamative] |
| | |
| (4) a. * Alex wondered [that Stevie lived in Spain]. | [*declarative] |

- b. Alex wondered [why Stevie lived in Spain]. [interrogative]
 - c. * Alex wondered [what a lot of time Stevie had spent in Spain]. [*exclamative]
- (5) a. Alex forgot [that Stevie lived in Spain]. [declarative]
- b. Alex forgot [why Stevie lived in Spain]. [interrogative]
 - c. Alex forgot [what a lot of time Stevie had spent in Spain]. [exclamative]

This thesis argues against the simple three-way distinction between embedded clause-types presented in (2) and, as a consequence, counters the view that subordinate clauses - or finite clausal complements (FCCs) in the terminology of this work - are selected on the basis of their declarative, interrogative or exclamative clause-type. This view is motivated on the one hand by a close investigation of the clause-types of English which have been documented to date, and on the other hand by new data on an additional embedded clause-type which until now has been almost entirely overlooked: the complementiser *how*-clause (CHC) (6). CHCs display a surface similarity to other *wh*-complement clauses and yet seem interpretively closer to *that*-clause complements. A detailed examination of their properties shows that there are good grounds for taking them to constitute an independent clause-type.

- (6) She told me [how she hadn't seen her husband for 3 months] and wouldn't see him for yet another 3 months.¹

As noted, there is in fact already support in the literature for the view that finer-grained distinctions need to be made between FCCs. Certain authors separate out 'interrogative' complements into 'true interrogative' complements such as (7) and resolutes in (8). Other authors distinguish non-factive *that*-clauses such as (9) from factive *that*-clauses such as (10), within the class 'declarative'. I show that the empirical support for such a view is strong. Together with embedded exclamatives (11) and CHCs (12), we have an inventory of six finite embedded clause-types for English.

- (7) I asked [where Sam lived]. [true interrogative]
 - (8) I forgot [where Sam lived]. [resolutive]
- (9) I thought [that Sam had wanted to go to Spain]. [non-factive *that*-clause]
 - (10) I forgot [that Sam had wanted to go to Spain]. [factive *that*-clause]
- (11) I forgot [what a lot of time Sam had spent in Spain]. [exclamative]
 - (12) I forgot [how Sam had wanted to go to Spain]. [CHC]

When the distributional patterns of these six FCCs are considered under a wide range of clausal-complement selecting predicates, a strikingly different picture emerges to that

¹ From <http://www.chronofhorse.com/forum/archive/index.php/t-218829.html>. Last accessed 16.06.2013.

suggested by (3)-(5) above. Resolutives (a), exclamatives (b) and CHCs (c) have precisely the same distribution. Without exception, a predicate which permits one of the three FCCs as complement automatically also admits the other two (13). A predicate which rejects one of the three FCCs as complement similarly rejects the other two (14).

- (13) a. We described/detailed/discussed [where they had fled from].
 b. We described/detailed/discussed [what a dreadful experience it was].
 c. We described/detailed/discussed [how they couldn't return home].
- (14) a. * We are sorry/happy/glad [where they had fled from].
 b. * We are sorry/happy/glad [what a dreadful experience it was].
 c. * We are sorry/happy/glad [how they couldn't return home].

The common distribution of clauses belonging to three distinct clause-types raises serious issues for the standard view that FCC selection takes place on the basis of clause-type. Accounts which posit selection on the basis of clause-type fail to capture these patterns parsimoniously, regardless of whether selection is construed as a syntactic (Rizzi 1997) or as a semantic (Grimshaw 1979, Ginzburg & Sag 2000) process. A new empirical characterisation of the properties which determine the distribution of FCCs is required, and this is what I set out to offer in this work. Resolutives, exclamatives and CHCs hold in common the properties of being both *wh*-clauses and factive clauses. This distinguishes them from both true interrogatives, which are *wh*-clauses but not factive, and from factive *that*-clauses, which are factive but not *wh*, as well as from non-factive clauses, which are neither factive nor *wh*. I refer to the specification of an FCC in terms of *wh* and factivity as its 'distributional type'. Whilst true interrogatives and factive and non-factive *that*-clauses have both a distinct clause type and distributional type, resolutives, exclamatives and CHCs have a common distributional type despite belonging to different clause-types. Demonstrating that when it comes to selection by a matrix predicate, the relevant 'type' of an FCC is distributional type rather than clause-type is the main contribution of this work. I further propose that distributional type is encoded syntactically, thus FCC-selection is viewed as a syntactic process in this work.

As an extension, I explore the additional question of what the status is of clause-type in a system where this is no longer deemed of relevance for the selection of embedded clauses. I show that the view put forward here is straightforwardly compatible with accounts which take clause-type to be determined compositionally, on the basis of specific combinations of syntactically-encoded components, rather than as a primitive. Furthermore, there is a striking overlap between the particular components which Zanuttini & Portner (2003) take to contribute to exclamative and interrogative clause-type, and the properties encoded in the distributional type specification of these clauses. More specifically, it appears that distributional type involves a sub-set of the properties which contribute to clause-type. Thus

whilst the need to distinguish distributional type from clause-type is clear, it appears that they are nevertheless not altogether divorced from one another.

1.2 Overview of this work

As noted above, the idea of classifying finite clauses according to clause type is well-established. Despite - or perhaps precisely because of - the attention which the topic of clause-type has received in the literature, there are a vast number of diverging views concerning how clause-types should be defined, and consequently regarding how many clause-types can be distinguished for English. Accounts differ greatly with regard to the weight that they give to syntactic and semantic factors in determining clause-types - should clause-types be defined on the basis only of syntactic properties, or of semantic properties alone, or on the basis of both? - in the labels that they apply to these, and in how they treat cases which seem to show properties of multiple clause-types. This work begins by tackling these core questions concerning clause-type. Chapter 2 offers a detailed consideration of the existing systems of classification, and the terminology applied to these, as well as laying out the particular conception of clause-type as the unique syntactic and interpretive fingerprint of a clause which is made use of in this account.

With this theoretical background in place, Chapter 3 focuses on the empirical data for the clause-types in question. It offers both breadth and depth of coverage, considering in detail the syntactic and interpretive properties of five different FCCs: resolutives and true interrogatives, factive and non-factive *that*-clauses, and exclamatives. Whilst all five of these have previously been identified as distinct clause-types in the literature, no existing account considers all of these types of FCC alongside one another. Some of the distinctions posited are more widely accepted than others. Particular attention is paid to motivating the view that certain clauses which show similarities in surface form nevertheless qualify as members of distinct clause-types, and to clearing up the confusion concerning the distinctions between resolutives and exclamatives, and between resolutives and free relatives, which in certain contexts have been conflated or confused. The conclusion reached is that in most cases it is not a single defining characteristic which distinguishes one clause-type from another. What makes a clause-type unique is the particular combination of syntactic and interpretive properties that it displays.

Chapter 4 is devoted to the in-depth study of one particular clause-type, the complementiser *how*-clause (see (6) and (12) above). Despite receiving a limited amount of attention in the recent literature, to date no comprehensive overview of its syntactic and interpretive

behaviour has been provided. Given that CHCs have previously been analysed as involving a DP structure (Legate 2010), the status of CHCs as rightful members of the inventory of English FCCs is first motivated at length. It transpires that any apparently DP-like properties are also displayed by other *wh*-clauses (resolutives, exclamatives). Crucially, in contexts where *wh*-CPs and DPs diverge in distribution, CHCs pattern like the former rather than the latter. Despite the similarities in external syntactic behaviour which CHCs show to other *wh*-CPs, CHCs differ in terms of internal syntactic behaviour and interpretation, motivating the decision to consider them an independent clause-type. These differences are attributed to a crucial distinction in the underlying structure of CHCs in comparison to resolutives and exclamatives: the *wh*-expression is externally merged as a C head, rather than being internally merged in spec-CP.

Moving from internal syntax to external syntax, Chapter 5 considers the distribution of the six kinds of FCC under 98 CP-selecting predicates drawn from the literature on FCC-distribution. A system of categorisation is drawn up for these predicates on the basis of the range of FCC complements which they permit. Just six classes of matrix predicates emerge. This can in part be attributed to the striking fact that resolutives, exclamatives and CHCs without exception have a common distribution. Existing accounts of FCC-distribution, which posit selection by matrix predicates for FCC complements on the basis of clause-type, deal with a more limited range of FCCs than are considered here. Not only this, but even when applied to this broader set of data, they fail to capture the full range of empirical facts in a parsimonious way. The common distribution of FCCs which in Chapter 3 and 4 were shown to constitute distinct clause-types strongly suggests that FCC-selection takes place on a different basis than clause-type. What resolutives, exclamatives and CHCs have in common, to the exclusion of all other FCCs, is their status as factive *wh*-clauses. I propose that it is this information, which I refer to as the ‘distributional type’ of a clause, which is relevant for selection, and not clause-type.

Chapter 6 offers an implementation of the system of distributional types put forward in Chapter 5. I make a proposal for the syntactic encoding of the properties which constitute the distributional type of an FCC - *wh* and factivity, or the absence thereof. My account is cast in cartographic terms and can be seen as a reworking of Rizzi’s (1997) proposal that ForceP is the highest projection in the clausal left periphery and encodes clause-type information. Given the findings of Chapter 5, ForceP is recast as (Distributional)TypeP, and encodes the specification of an FCC for *wh* and factivity in such a way as to make this information locally available to a selecting predicate. Following recent revisions made by Rizzi (2012) to his original proposal, I propose that whilst the factive specification of a clause is always contributed by the Type head, in certain instances the *wh*-specification is contributed by a constituent situated lower in the clausal left periphery, and is only located by the Type head when it conducts the operation Search. Derivations for each of the six

FCCs are proposed. Existing literature which, counter to the prevailing view that FCCs are selected on the basis of their clause-type, already suggests the relevance of the properties *wh* and factivity for FCC-distribution is presented as further support for this proposal. The final element of Chapter 6 is a discussion of the consequences for clause-type in embedded clauses, in an approach which no longer deems clause-type of relevance for the selection of FCCs by a higher predicate. As an extension to the current proposal, I suggest that if clause-type is not encoded as a syntactic primitive, but rather arises compositionally, then there is still scope to see a connection between clause-type and distributional type, albeit indirect.

The final chapter, Chapter 7 points to several directions for further research which emerge as a consequence of the findings presented in this work. These concern both the application of the current proposal to a broader range of clause-types, both in English and in other languages, and also the need for an equally broad and detailed study of the properties of CP-embedding predicates, in order to move in the direction of a deeper understanding of the selection relation itself.

Chapter 2 Distinguishing clause-types

2.1 Introduction

There seems to be a consensus in the literature (both in formal and in functional frameworks, in theoretical work and in more pedagogically-oriented approaches) that clauses belong to different types. The examples in (1) provide a typical illustration of what are sometimes deemed to be ‘instances of the three basic sentence types in English’ (König & Siemund (2007: 277)): declarative (1a), interrogative (1b) and imperative (1c).

- | | |
|--|-----------------|
| (1) a. John is taking out the garbage. | [declarative] |
| b. Is John taking out the garbage? | [interrogative] |
| c. Take out the garbage, John. | [imperative] |
- [König & Siemund (2007: 277), ex. (3a-c)]

My focus in this work is not on root clauses such as in (1), but on the distribution of finite clausal complements (FCCs) in English. In the influential account of Grimshaw (1979), and much subsequent work, this has been tied to the clause-type of the complements in question. The central idea of such approaches is that matrix predicates select for clausal complements on the basis of what could be labelled ‘clause-type’ - proposition, question or exclamation, in Grimshaw’s (1979) terms - as illustrated by the examples in (2).

- | | |
|---|--------------------------|
| (2) a. John thought [that Bill saw someone]. | [proposition complement] |
| b. John wondered [who Bill saw]. | [question complement] |
| c. I'm surprised [at what a large house he lives in]. | [exclamation complement] |
- [Grimshaw (1979: 279, 281) (ex. (1a, c) and (4b))]

The goal of this work is to offer an alternative conception of the connection between clause-type and the distribution of FCCs, in which the link is at best indirect. Crucially, the relative merits of the two proposals can only be evaluated when we have a clear understanding of what exactly is intended by the term ‘clause-type’. This is one of the key questions

addressed in this chapter. Furthermore, we see already that a range of labels are used in relation to clause-types - the declaratives and interrogatives of König & Siemund (2007) on the one hand, the propositions and questions of Grimshaw (1979) on the other. Therefore another goal of this chapter is to remove some of the terminological confusion associated with the topic.

My view that the clause-type (see section 2.2 for a definition) of FCCs in English is not what determines their distribution is empirically motivated on the basis of the expanded typology of FCCs in English which I draw up. Anticipating the conclusions somewhat, the typology which I establish distinguishes the 6 kinds of FCC given below in (3)-(8), the empirical properties of which I discuss in detail in Chapters 3 and 4. The fact that my inventory of FCCs contains twice as many members as that of Grimshaw (1979), sketched above in (2), raises issues about the nature of the evidence which is required to justify positing a distinct clause-type, and how fine-grained these distinctions should be.¹ Both of these issues are dealt with at length in this chapter. It quickly becomes clear that the system we end up with depends to a considerable extent on how we define the ‘types’ of which it is constituted. Already the examples in (3)-(8) reveal certain assumptions that I make, for instance the fact that finite complement clauses with the same surface string can nevertheless qualify as members of distinct clause-types. In this chapter I make explicit my conception of ‘clause-type’, and the criteria used for distinguishing one type from another which inform the discussion of the data in Chapters 3 and 4. Although my ultimate focus is on complement clauses, much of the discussion in this chapter concerns root clauses, which is a reflection of the fact that clause-typing is an issue which has received considerably more attention in relation to root clauses than it has in relation to embedded clauses.

- | | |
|--|-------------------------------------|
| (3) I asked [where Mary lived]. | [interrogative] |
| (4) I forgot [where Mary lived]. | [resolutive] |
| (5) I thought [that Mary had wanted to go to Spain]. | [non-factive <i>that</i> -clause] |
| (6) I forgot [that Mary had wanted to go to Spain]. | [factive <i>that</i> -clause] |
| (7) I forgot [what a lot of time Mary had spent in Spain]. | [exclamative] |
| (8) I forgot [how Mary had wanted to go to Spain]. | [complementiser- <i>how</i> clause] |

¹ In the matrix domain König & Siemund (2007) also make reference to ‘three basic sentence types in English’, although the third member of their system is ‘imperative’, rather than the ‘exclamation’ of Grimshaw. This raises the possibility not only that the range of clause-types in the matrix domain differs from that in the embedded domain, but also that there may be additional non-basic types. Whether or not all clause-types are considered equal is another question we can ask. Note that the goal of this chapter is not to provide a definitive inventory of clause-types in English, but rather to discuss the theoretical issues which relate to clause-typing. Naturally this involves consideration of empirical data, but this is not intended to be exhaustive.

Although as noted at the beginning of this section, there seems to be agreement that clauses belong to different types, it soon becomes apparent that there is debate and disagreement about almost every other aspect of clause-typing. In sections 2.2 and 2.3 I consider possible criteria for defining clause-types in the root and embedded domains respectively, with distinctions made at the syntactic, semantic and pragmatic levels. The focus of the rest of the chapter is on the inter-relations between these levels. In 2.4 I focus on the relation between the syntax and pragmatics of a clause. Having concluded that this is mediated by the semantics, and that the syntax-semantics mapping is the most relevant for the embedded domain, I turn my attention to this in section 2.5. Section 2.6 concludes, and sets the scene for the empirical discussion in the following chapters.

2.2 Distinguishing clauses - the root domain

There are multiple possible criteria on the basis of which clauses - including the finite clausal complements of interest here - can be distinguished. What type of linguistic information do we take into account when differentiating clauses? Should distinctions be made solely on the basis of observable differences in the surface form? Is it formal syntactic and semantic properties alone which count, or does pragmatic inference also come into play? Are these actually distinct systems for distinguishing clause-types which yield different results, or do they interact? As will become clear in the course of the discussion, there is to date no consensus on these issues, and there are many questions remaining to be answered. The goal of this section is, drawing on existing literature, to discuss the various possible approaches to differentiating types of clauses, and to highlight those of greatest relevance to the present work.

To attempt to summarise the situation is inevitably to simplify. I structure the discussion on the basis of the three linguistic levels at which clause-types can be distinguished: the syntactic, the semantic and the pragmatic. However, it should be borne in mind, firstly, that the distinctions between these levels are not as rigid and clear-cut as the division into distinct sub-sections below might suggest, and secondly, that other criteria for distinguishing clauses could be imagined. The picture presented here, in which the syntactic type of a clause determines its semantic clausal force, which is then open to a range of pragmatic uses, or illocutionary forces, is one found in certain formal linguistic accounts (Huddleston 1994; Zanuttini & Portner 2003) but does not reflect the traditional view from speech act theory. The latter links illocutionary force directly to syntactic form, bypassing

the mediating semantic level assumed here. I return to this latter kind of approach in section 2.4, where its drawbacks in comparison to the approach favoured here are made clear.

Note further that many accounts which differentiate clauses are (primarily or exclusively) concerned with the root domain. To date, comparatively little attention has been dedicated to this issue as it applies to embedded clauses. This chapter hopes to go some way towards redressing the balance. In section 2.3, I deal specifically with those accounts which discuss the issue of clause-type in relation to the embedded domain. However, given that there is a far more extensive literature on the issue of clause-type in main clauses, the key concepts and distinctions are first introduced in relation to the root domain. As we will see in the course of this chapter, many of these will also prove relevant in the embedded domain.

2.2.1 Syntactic type (clause-type)

One approach to distinguishing root clauses focuses on their ‘grammatical form’ (Huddleston 1994: 411). For Huddleston (1994: 412), ‘the issue of which type a particular example belongs to is to be resolved by reference to its syntactic properties, not by reference to its meaning or potential illocutionary force’.² The term ‘clause-type’ is often used to refer to the ‘flavours’ of clauses defined on syntactic grounds.³ There is no consensus as to the precise inventory of clause-types, cross-linguistically or for a particular language. For Huddleston (1994), the inventory of English clause-types includes the categories

² For Allan (2006: 2), clause-type is similarly a formal property, but defined on the basis of ‘morphosyntax, lexis, and prosody’. Whilst the prosodic properties of various clause-types are almost certainly of relevance, they will not be taken into account here for reasons of space. This should not be taken to suggest that they are of less importance in distinguishing clause-types than the morpho-syntactic properties I discuss at length. Indeed, it is quite plausible that the prosodic properties of an utterance are related to its underlying syntactic structure, as explored in recent work by Bocci (2008, 2013).

³ Levinson (1983: 243) notes that ‘the term **mood** is often used...but this is inaccurate as *mood*, in traditional grammar at any rate, is a category of verbal inflection, and on this dimension, *imperative* contrasts with *indicative* and *subjunctive* rather than *declarative* and *interrogative* [his emphasis]’. ‘Mood’ in Levinson’s sense is beyond the scope of this work, as it was Levinson’s. Levinson instead opts for the term ‘sentence type’. Assuming the standard principled distinction between ‘sentence’ and ‘clause’, the term ‘clause-type’ is to be preferred however, given that two clauses within a single sentence can belong to distinct types, as Huddleston (1994: 413) observes. This can arise not only in the cases of clausal coordination which he discusses, such as the exclamative + declarative coordination in (i), but also - and more relevantly for my concerns here - in cases of clausal complementation like (ii), where the embedded clause is declarative yet the entire matrix predicate plus embedded clause complex is interrogative.

- (i) What a splendid player she is, and she’s still only six! [Huddleston (1994: 413), ex. (3d)]
- (ii) Where did he tell you that she’d been?

declarative, interrogative, imperative and exclamative, as illustrated in (9) for the root domain.⁴

- | | |
|-----------------------------------|-----------------|
| (9) a. He broke it. | [declarative] |
| b. Who broke it? | [interrogative] |
| c. Break it! | [imperative] |
| d. What a lot remains to be done! | [exclamative] |

Whilst each clause-type is ‘syntactically distinct’ (Huddleston 1994: 412), this is not to say that there cannot be a surface resemblance between instances of distinct clause-types. As Huddleston (1994: 412) notes, ‘[a]n ambiguous sentence may belong to different types in different senses’, but cannot be ‘simultaneously interrogative and declarative, interrogative and imperative, and so on’. On the basis of its syntactic properties, any given clause qualifies for one and only one clause-type. So whilst the string in (10a) may be realised either as an interrogative as in (10b) or as an exclamative as in (10c), it can never be both simultaneously.

- | | |
|-------------------------------------|-----------------|
| (10) a. How much remains to be done | |
| b. How much remains to be done? | [interrogative] |
| c. How much remains to be done! | [exclamative] |

2.2.2 Interpretive type (clausal force)

Preparatory to the discussion in this and the following section, it should be noted that whilst both Huddleston (1994) and Allan (2006) take pains to distinguish clause-type, defined on the basis of (syntactic) form on the one hand, from systems of classification for clauses which make reference to their semantic interpretation on the other, many authors are less cautious in doing so, and use terms such as ‘interrogative’ and ‘question’, ‘exclamative’ and ‘exclamation’ interchangeably.⁵ The former terms I reserve for clause-type, defined on

⁴ See Elliott (1974: 231) for references to some early classificatory systems for clauses. Allan (2006) rather identifies ‘declarative, interrogative, imperative, hypothetical, and expressives’ as the 5 clause-types found in English. In his system, exclamative does not qualify as a distinct clause-type: rather, exclamative “flavours” of the other 5 clause-types can be found. This fits in with a more generally held view in the typological literature (cf. Sadock & Zwicky 1985) that exclamatives are a ‘minor’ clause-type. Whatever the justification for such a view from a cross-linguistic perspective, there seems no reason not to consider English exclamatives as being on a level-footing with other clause-types, such as interrogative and declarative.

⁵ See Huddleston (1994: 411) for an extensive list of references to accounts which use the terms ‘interrogative’ and ‘question’ interchangeably, as well as references to the more restricted range of accounts which do make a terminological distinction for the syntactic and semantic levels, with Jespersen (1924: 302) the earliest credited

the basis of syntactic properties, as discussed above, whilst the latter I rather use to make reference to semantic interpretation i.e. clausal force.⁶ This is set out below in Table 1 in summary section 2.2.4.

Clausal force can be defined as ‘the semantics of clause-type’ (Allan 2006: 2).⁷ Note that this already presupposes a connection between syntactically-defined clause-type, and semantically-defined clausal force: the two levels of classification are not taken to be independent. Upon this view - the one favoured here - a single semantic characterisation is conventionally associated with each syntactically-defined clause-type. For instance, the distinctive semantic property of the clause-type ‘interrogative’ may be that it defines a set of answers, a property which is summed up by the label ‘question’, the clausal force, whilst a root declarative ‘is basically associated with asserting’ (cf. Portner & Zanuttini (2005: 58)).⁸ Portner & Zanuttini’s (2005: 58) idea, which I follow, is then that ‘other illocutionary forces that it [the clause] would receive are pragmatically determined, for example by implicature’. In sections 2.2.3, 2.4 and 2.5 below, I discuss the issue of distinguishing which aspects of interpretation are to be attributed to semantics and which to pragmatics.

with doing so. Here I single out just a few additional “offenders”, such as Rizzi (1997: 262), who claims that ‘Complementizers express the fact that a sentence is a question, a declarative, an exclamative’. It is not entirely clear whether Rizzi’s ForceP encodes clausal force in the sense intended here, or clause-type, or both. The two have subsequently been separated out by certain authors in more recent work e.g. Coniglio & Zegrean (2012). Matos & Brito (2012) seem to use the terms ‘(im)proper indirect question’ and ‘(im)proper indirect interrogative’ interchangeably, leading to somewhat confusing claims such as the following: ‘while proper indirect interrogatives...report a question, improper indirect questions...have a declarative nature’ (Matos & Brito 2012: 2).

⁶ Levinson (1983: 243) also warns that ‘we must be careful to distinguish the set of terms *imperative*, *interrogative* and *declarative* from the set of terms *order* (or *request*), *question* and *assertion* (or *statement*) [his emphasis]’. However, he makes the divide along the lines of syntactic structure vs. pragmatic interpretation: ‘The first set are linguistic categories that pertain to sentences, the second set are categories that pertain only to the use of sentences (i.e. to utterances and utterance types)’. For discussion of the connection between the two, see section 2.4 below.

⁷ Allan (2006) himself favours the term ‘primary illocution’, whilst Grimshaw (1979) instead uses the term ‘semantic type’. The latter term has the advantage of parallelism with the term ‘clause-type’, it runs the risk of confusion with the established use of the term in type-theory (where a matrix declarative clause may be of type <t>, for instance). As Lahiri (2000: 244 f.n. 2) points out, whilst one could suggest formal types corresponding to Grimshaw’s (1979) ‘semantic types’ P (proposition) and Q (question), it is harder to imagine what the type-theoretic equivalent of her ‘semantic type’ E (exclamative) could be.

⁸ Note that whilst we have an intuitive sense of what a question is, this is less clear for an assertion. Furthermore, it also seems that there is currently no consensus in the literature as to how ‘assertion’ is to be defined. This makes the validity of the claim that the interpretive type of a matrix declarative is an ‘assertion’ difficult to assess. Note that for the embedded domain, it has long been observed that not all declarative clauses ‘assert’. See for instance Hooper & Thompson (1973), and the discussion of factive vs. non-factive *that*-clauses in Chapter 3, section 3.2.2.

2.2.3 Utterance type (illocutionary force)

Accounts in the vein discussed in section 2.2.2 argue that whilst prototypically a question may be uttered with ‘the aim of discovering the answer from the addressee’ (Huddleston 1994: 414), inquiry force is ‘not a necessary condition for a question, let alone an interrogative’ (Huddleston 1994: 414). It is just one amongst several pragmatic uses that a question can be put to. For instance, interrogative form may be used not only to convey an inquiry, as in (9b) above, but alternatively to issue an order (11a), or a request (11b) (Huddleston 1994: 414), amongst other uses, such as exam and quiz questions (11c), where the aim is rather to discover if the addressee is aware of the answer. As noted in section 2.2.2, the semantic core of a question is taken to be the fact that it defines a set of answers. The specific functions a question can be put to are rather attributed to a third axis along which root clauses can be differentiated - what Huddleston (1994) terms illocutionary force, in the tradition of speech act theory.⁹ As the particular function which arises is determined by context, illocutionary force is taken to be a question of pragmatics. Each of the cases in (11) below, as well as (9b) above, has a different illocutionary force, yet all are taken to be instances of the same clause-type: interrogative, associated with the same common semantic core of defining a set of answers. On this view then, the fact that different interpretations can be associated with formally similar clauses is attributed to the pragmatic context in which they occur. For more on this point, see the discussion in section 2.4 below.

- | | | |
|---------|---|----------------------|
| (11) a. | Could passengers please refrain from smoking? | [order] |
| b. | Could I have another sheet of paper? | [request] |
| c. | What is the capital of Wales? | [exam/quiz question] |

2.2.4 Overview of clause-types in the root domain¹⁰

From the discussion above, we see that each clause can be classified on three different levels: at the syntactic level for clause-type, at the semantic level for clausal force, and at

⁹ For more on which, see footnote 11. Allan (2006: 3) makes a distinction between illocutionary force and illocutionary point. He defines illocutionary point, somewhat roughly, as what the speaker wants the hearer to understand.

¹⁰ The label ‘clause-type’ was initially introduced to refer to clauses as distinguished by their syntactic properties (as opposed to on the basis of their semantic or pragmatic interpretation). However given that under the view taken here, syntactically distinct clause-types also differ in interpretation, it has a broader use too. A ‘clause-type’ in this extended sense involves not only a distinctive syntactic structure (although not necessarily a unique surface string), but also a corresponding semantic difference to other clause-types. On the assumptions made here, the latter cannot arise without the former, as the discussion in section 2.5.1 will make clear. In subsequent discussion, the term

the pragmatic level for illocutionary force.¹¹ This three-way system is summarised in Table 1 below. It should be kept in mind, however, that - as was made clear in the introduction to section 2.2 and in the discussion in section 2.2.3 above - the issue of categorising clauses is a complex one. The picture presented in Table 1 is both idealised and incomplete, and should be taken not as an authoritative claim, but as a first characterisation of the categorisation of clause-types in the root domain, which attempts to synthesise and clarify the picture that emerges from the literature. In the following sections I turn my attention to some of the complications.¹²

Table 1: Categorisation of root clauses on the basis of syntactic, semantic and pragmatic properties

level in grammar	labels	how defined?	examples			
syntactic	clause-type	morpho-syntax, lexis, prosody	declarative	interrogative	exclamative	imperative
semantic	clausal force; primary illocution	the distinctive semantic property of	assertion	question	exclamation	order

‘clause-type’ is used to indicate a conventionalised pairing of syntactic structure and clausal force, except in contexts where an explicit contrast is made between syntactic form and semantic or pragmatic interpretation.

¹¹ Note that Austin (1962) also distinguishes a different three-level system of speech acts. This is distinct from - though related to - the system discussed here, in that the distinctions made are between types of actions which utterances perform. Levinson (1983: 236) presents it as follows:

- (i) **locutionary act**: the utterance of a sentence with determinate sense and reference.
- (ii) **illocutionary act**: the making of a statement, offer, promise, etc. in uttering a sentence, by virtue of the conventional *force* associated with it (or with its explicit performative paraphrase).
- (iii) **perlocutionary act**: the bringing about of effects on the audience by means of uttering the sentence, such effects being special to the circumstances of the utterance.

[Levinson (1983: 236)]

As Levinson (1983: 236) notes, although all three of these acts formed part of Austin’s system of speech acts, the term ‘speech act’ is frequently used with a sense equivalent to ‘illocutionary act’. Austin’s ‘illocutionary act’ seems to encompass both ‘clausal force’ and ‘illocutionary force’ as defined in the main text above.

¹² Striking is the fact that interrogatives seem to be associated with a broader range of illocutionary forces than other clause-types. I have no explanation for this imbalance, but consider it an interesting question for future research.

		a clause-type				
pragmatic	illocutionary force; illocutionary point; illocutionary act	what speaker wants hearer to understand	informing, expressing surprise, ordering	inquiring, ordering, requesting, expressing surprise, posing exam/quiz questions	expressing surprise	achieving desired state of affairs

So far, the picture presented - and summarised in Table 1 - suggests that each syntactically defined clause-type corresponds to one semantically defined clausal force, for which a range of pragmatic interpretations are possible. A clause typed as interrogative on the basis of its syntactic properties will have the semantics of a question - in other words, it defines a set of answers - and pragmatic factors then determine whether this is understood in context to be a request, or an inquiry, or an expression of surprise, amongst other possibilities. But, as yet, nothing has been said about why it is that interrogative syntax is associated with the semantics of a question, rather than, say, that of an assertion - or indeed, whether it might not be possible for the latter scenario to arise. At least in principle, we could envisage a situation in which the same syntactic string could be mapped to two distinct semantic interpretations. But does such a situation ever arise? Faced with a single syntactic string with multiple interpretations how, in fact, can we determine whether it is associated with two distinct clausal forces, or rather a single clausal force from which different pragmatically-induced interpretations arise? Similarly, given the semantics of a question, what determines the particular range of contextually-induced interpretative possibilities?

Underlying all of these open questions is one general point: what are the possibilities for, and the constraints on, the mapping between syntax and semantics, between semantics and pragmatics? These are deep and difficult questions which go well beyond the issue of clause-typing, and for which I cannot hope to provide a conclusive answer here. Nevertheless, in section 2.4 I focus on the connection between syntactic structure and the pragmatically determined illocutionary force, including cases in which there is an apparent ‘mismatch’ between syntactic form and semantic/pragmatic interpretation, and explore what these bring to bear on the issue. In section 2.5, I turn my attention rather to the mapping between syntax and semantics, which is of more relevance for the task of distinguishing embedded clause-types. But prior to this, in section 2.3. I first consider how the distinctions made to date apply to embedded clauses.

2.3 Distinguishing clauses - the embedded domain

Thus far, the discussion of clause-type and semantic category has been limited to the root domain. Yet our main concern here is finite complement clauses. How does the three-way system sketched here apply in the embedded domain? According to Huddleston (1994: 414), '[a] reduced system of clause type applies to embedded clauses' in comparison to the root domain: interrogatives, declaratives and exclamatives are all found, as he illustrates with the examples given here in (12), but imperatives are not.¹³

- (12) a. I firmly believe [that it is impossible]. [declarative]
 b. He doesn't know [where you live]. [interrogative]
 c. It's amazing [what a fuss they made]. [exclamative]
- [Huddleston (1994: 414) ex (5)]

Not only this, but according to Huddleston (1994), there are also fewer ‘layers’ at which clauses can be distinguished in the embedded domain. In addition to syntactic embedding, he also discusses the possibility of embedding what I have termed here ‘clausal force’: for Huddleston (1994: 415), (12) involves not only embedding of the clause-type ‘interrogative’, but also of the semantic category ‘question’, ‘defining the same set of answers as its unembedded counterpart *Where do you live?*’ However, although such a case ‘reports an illocutionary act of inquiry’, nevertheless ‘there is still no illocutionary force attaching to the embedded question’ (Huddleston 1994: 415). That is to say, according to Huddleston (1994) in the embedded domain we can distinguish clause-types at two levels, the syntactic and the semantic, whereas at the root level we additionally have distinctions at the pragmatic level (compare Tables 1 and 2).¹⁴

¹³ Citing Wilson & Sperber (1988: 84) on the distinction between imperatives and infinitivals, he argues against analysing the non-finite complement clause in (i) as an embedded imperative, on the grounds that it does not differ syntactically from the non-finite complement in (i), which seems in no way related to an imperative. Any sense that a directive is involved in (i) is rather to be attributed to the lexical content of the matrix predicate, *order*. He makes the same point for the *that*-clause complements in (ii).

(i) a. He ordered her [to leave it alone]. [Huddleston (1994: 414)]
b. It was foolish of her [to leave it alone].

(ii) a. It is important [that she leave it alone]. [Huddleston (1994: 414)]
b. It is essential [that we have some rain soon].

¹⁴ McCloskey (2006:112) claims that in fact '[i]t has been routine in descriptive work in syntax and in pragmatics to assume that illocutionary force indicators may be embedded [...] In a different intellectual tradition, however (in the philosophy of language and in work in formal semantics informed by logic and philosophy of language) there is a well-established and widely-held view that there can be no such thing as an embedded illocutionary force

Table 2: Categorisation of embedded clauses on the basis of syntactic/semantic properties

level in grammar	labels	examples		
syntactic	clause-type	declarative	interrogative	exclamative
semantic	clausal force	assertion	question	exclamation

2.4 Linking syntactic and pragmatic types

As already noted above, the syntactic, semantic and pragmatic types identified for finite clauses are not independent. The view presented in the discussion in sections 2.2.1-2.2.3, and summarised in Table 1 in section 2.2.4, instantiates one particular theoretical position on the connection between syntax, clausal force and illocutionary force, of which Huddleston (1994) and Zanuttini & Portner (2003) are proponents. The syntactic structure associated with a particular clause seems to determine the semantic interpretation(s) available. The semantic interpretation which arises, interacting with contextual factors, can in turn give rise to various pragmatic effects. Although it has already been demonstrated that these pragmatic effects are not entirely predictable on the basis of the syntax of the string in question - interrogative syntax can be associated not only with an inquiry, but also with a request, order, or expression of surprise, amongst other functions - there is, as Allan (2006: 2) notes, at least '[a] degree of coincidence between clause-type and illocutionary force'. In section 2.4.1, I compare this view with the more traditional conception of this relation, noted in section 2.2.3 above, which stems from the pragmatic tradition of speech act theory and posits a much tighter connection between clausal syntax and illocutionary force, and justify my decision to favour the former approach. In section 2.4.2, I broaden the data set under consideration from the canonical cases taken into account to date, in which there is seemingly a clear correlation between the syntactic structure of a clause and the force associated with it, to cases where there is an apparent 'mismatch' between form and

indicator and that analyses which make appeal to such notions are incoherent'. I focus on the syntactic and semantic properties of the finite clausal complements of English without taking a stance on what, if any, their independent pragmatic effect might be. As will become clear from the discussion in section 2.5 below, even limiting our attention to the domains of syntax and semantics, there are many open questions concerning the connection between the two.

interpretation. I discuss how various theoretical approaches handle these. In section 2.5 I turn my attention to the syntax-semantics mapping.

2.4.1 Direct and indirect force

In the approach presented in section 2.2.3 above, as represented by Huddleston (1994), the connection between the illocutionary force of an utterance and the syntactic form of the clauses involved is mediated by semantics. Syntax maps to a broad semantics for the clause-type, which is then compatible with a range of illocutionary forces, coerced by context. This runs counter to the line pursued in earlier work on speech acts (summarised in Levinson (1983: 263-276)) in which there is a single illocutionary force conventionally associated with each syntactically-defined clause-type, without the mediating role of semantics. Levinson (1983: 263) dubs this position the ‘literal force hypothesis’ (LFH). To account for the fact that, in practice, a range of interpretations can be associated with any single clause-type, accounts which embrace the LFH, have recourse to the idea of indirect speech acts. These are additional illocutionary forces which can arise pragmatically alongside the conventionally determined direct force of an utterance, which will always be present. Thus, upon such a view, the direct force of an interrogative is inquiry force. However, in a particular context, the additional indirect force of a request, or an order, or an expression of surprise may arise.

Numerous difficulties have been identified with this approach however, and it is these which lead us to favour the view summarised in sections 2.2.2 and 2.2.3. I sketch a number of these here, referring to Levinson (1983: 264-274) for more detailed discussion. The first, as Levinson (1983: 264) notes, is that in fact ‘*most* usages are indirect [his emphasis]’. He exemplifies this with the function of requesting, which in English is rarely accomplished by means of the imperative, despite this being the clause-type with which this illocutionary force is claimed to be conventionally associated.¹⁵ The examples in (13) below are just a small sub-set of those Levinson (1983: 264-265) provides by way of illustration of the diversity of structures which, given appropriate contextual conditions, can be used to make a request. As none of these is in imperative form, in all these cases the illocutionary force of requesting is considered to be an indirect speech act. The second, and related, difficulty, given the diversity of structures which can be put to use as requests, is in determining how precisely this interpretation arises in each instance (Levinson (1983: 265)). The third problem with treating the request force which arises in the interrogative and declarative clauses in (13) as a pragmatically-conditioned indirect speech act is that we find overt

¹⁵ As we will see in section 2.4 below, a similar point can be made for the function of exclaiming, which in English is often achieved by strategies other than the use of an exclamative clause-type.

syntactic markers of this force. Levinson (1983: 266) claims that the distribution of pre-verbal *please* in English is ‘restricted to a single functional class, namely the set of effective requests, direct or indirect’, such that it can occur in both the imperative in (14a), where request force is the direct force, and in certain interrogatives such as (14b), where requesting is the indirect force. Such patterns are unexpected if the indirect force is not syntactically encoded.¹⁶ Discussion of similar cases can be found in Levinson (1983: 265-267) and in section 2.4.2 below.

- (13) a. I want you to close the door.
 b. Can you close the door?
 c. Would you close the door?
 d. Would you mind closing the door?
 e. You ought to close the door.
 f. May I ask you to close the door?
 g. How about a bit less breeze? [Levinson (1983: 264), ex. (88a-g)]
- (14) a. Please shut the door.
 b. Would you please close the door? [Levinson (1983: 265), ex. (89, 91)]

Levinson (1983: 268) presents two approaches, which he dubs ‘idiom theory’ and ‘inference theory’, which have been used to account for indirect speech acts whilst maintaining the LFH. I do not present these here, but refer to his account for discussion, as he ultimately concludes that there are so many difficulties associated with both approaches that the LFH becomes untenable (Levinson (1983: 276)). As a result, he rather advocates an approach in line with Huddleston’s (1994) view, as outlined in section 2.2.2 and 2.2.3, in which the connection between clause-type and illocutionary force is mediated by semantics: syntax gives rise to a very general semantics for clause-type, which is compatible with a number of illocutionary forces.¹⁷ In the case of interrogatives then, inquiry force is not given primacy, but is just one pragmatic function amongst many which questions can serve.

Whilst such a view avoids many of the pitfalls of the literal force hypothesis and the associated concept of the indirect speech act, it raises issues of its own. As implemented by Huddleston (1994), the approach ultimately advocated by Levinson (1983: 276) implicitly seems to award equal status to each of the pragmatic interpretations that a clause may

¹⁶ As Liliane Haegeman [p.c] points out to me, a more clearly syntactic reflex of the force of requesting is the use of the adverb *kindly*, as in the structures in (i).

(i) a. Kindly shut the door.
 b. Would you kindly close the door?

¹⁷ In sections 2.5.3.3 and 2.5.4 I discuss particular accounts within the cartographic framework which also avoid the issue of indirect speech acts, whilst maintaining a closer connection between syntactic structure and pragmatic interpretation than in Huddleston’s account.

receive. In Huddleston's (1994) account of interrogatives, not only is inquiry force not given primacy, but neither is any other use of a question: all pragmatic interpretations are treated as being on a par. It is unclear how accurate a reflection of the empirical situation this is. In reality it seems that some illocutionary forces are more inherent to questions and less dependent on the interaction with the context than others. He presents example (15) alongside those given in (11) above by way of illustration of an additional function which a question can serve: the expression of surprise.

(15) A: She's just had a another baby.

B: Has she? I didn't even know she was pregnant. [surprise]

[Huddleston (1994: 414)]

Yet whilst there are no particular conditions which need to obtain in order for a question to be used to make an inquiry, the expression of surprise in the question in (15B) seems to stem from the specific use of the question to echo the preceding utterance (15A), not from the question per se.¹⁸ This suggests that perhaps not all pragmatic properties are on an equal footing - some functions, such as inquiring, seem more inherently associated with questions than do others. Furthermore, there are open issues remaining in relation to the precise range of pragmatic interpretations which can arise from a particular semantic denotation, and how these are determined and constrained. Is it ever the case that precisely the same illocutionary force can arise from two distinct clauses with different semantics, or do the 'surprise' readings of interrogatives (cf. (15)), declaratives (cf. f.n. 18 (i)) and exclamatives (cf. f.n. 18 (ii)) differ in quality as well as in how tightly they seem to be associated with a particular clause-type?

Thus if such an account lessens the difficulties involved in distinguishing which aspects of interpretation are to be attributed to the semantics and which to the pragmatics, it raises the possibility that we may need to make more subtle distinctions between different kinds of

¹⁸ As Liliane Haegeman [p.c] brings to my attention, a clause with declarative form which echoes a preceding utterance similarly seems to contextually entail 'surprise', as in B's utterance in (i). On the other hand, an expression of surprise seems much more closely entwined with the core semantics of an exclamation such as (ii), for which no preceding (linguistic) context is required for its felicitous use. This does not emerge from the picture presented in Table 1 in section 2.2.4, where 'expressing surprise' is given as a function at the pragmatic level of assertions, questions and exclamations. One possibility is that 'surprise' is in fact a basic component of what it means to be an exclamation i.e. it is involved at the semantic level, although there is debate in the literature as to whether or not 'surprise' is in fact a defining characteristic of exclamations. See Michaelis (2001) and Zanuttini & Portner (2003) for conflicting views on the issue, and Chapter 3 for further discussion of the interpretive properties of exclamations.

(i) A: Sam's won the lottery.

B: Sam's won the lottery! Wow! Amazing!

(ii) What a lot of money Sam won!

pragmatic interpretations available to clauses, as will be discussed in section 2.5.4. These issues will not be central to this work, however, focussing as it does on finite complement clauses, for as was shown in section 2.3, the pragmatic level is not taken to be of relevance in the embedded domain. The syntax-semantics relation for clauses on the other hand is central, and is explored in detail in section 2.5 below. In the course of this discussion, the syntax-pragmatics relation will be touched upon once again.

2.4.2 ‘Mismatches’

Huddleston’s (1994) system is set up in such a way that there is always a neat correlation between clause-type and clausal force. Interrogative form always gives rise to a question. A question is invariably associated with interrogative form. Any apparent ‘mismatches’ in form and meaning - that is to say, any distinction in interpretation between clauses of the same syntactically defined clause-type - must come in at the level of pragmatics. The fact that interrogative syntax may be used to convey an order or request as well as an inquiry stems from the fact that all these pragmatic interpretations are compatible with the basic question semantics taken to be associated with the underlying structure.¹⁹ Whilst this admits a wide variety of pragmatic interpretations for a single syntactic structure, the semantics nevertheless constrains the range of illocutionary forces available. The question arises as to how to deal with cases where we see the regular association of a specific interpretation with a particular syntactic string, which falls beyond those we might predict to be compatible with the semantics conventionally associated with the structure in question. In what follows, I consider three specific cases in which structures which are interrogative in form receive an interpretation which is not obviously compatible with question semantics.

The first case under consideration are exclamative-inversion sentences of the type discussed in detail by N. McCawley (1973) and Huddleston (1993a), as illustrated in (16a). For Huddleston (1994: 425), these are ‘not only closed interrogatives at the syntactic level but also polar questions at the semantic level: the exclamatory statement interpretation is a pragmatic matter’. He suggests that it can ‘be handled in terms of indirect speech acts’ (Huddleston 1994: 425). In doing so, this seems to recognise that such cases differ from those discussed in (11) and (15) above. In those cases, the notion of indirect speech act was no longer deemed relevant, as the illocutionary force involved was one of several compatible with the question semantics. The suggestion seems to be that (16) rather involves an additional exclamatory interpretation in addition to the ‘literal’ question interpretation which arises from the question semantics conventionally-associated with interrogative form. Yet the advantage of Huddleston’s (1994) treatment of cases such as

¹⁹ As Lieven Danckaert [p.c] points out, the question remains as to how this compatibility is to be computed.

(11) and (15) was that it did away with the need to invoke indirect speech acts. Appealing to indirect speech acts to handle cases such as (16) re-introduces all the difficulties associated with them which were referenced in 2.4.1, including the lack of an explanation for the formal markers of exclamation, which differentiate the exclamative-inversion sentence in (16a) from the genuine polar question in (16b), such as the possibility of interjections such as *boy*, *man* in the former case only (see Biberauer 2010).²⁰ We do not expect such formal distinctions if the syntactic and the semantic structure is identical in the two cases. Thus whilst pragmatic context may be called on to explain the ‘surprise’ interpretation in cases such as (15), such an approach seems less unsatisfactory for cases such as (16), where the ‘surprise’ interpretation seems to be inherently associated with this particular structure. An alternative approach then is to consider the structures in (16) to constitute a distinct pairing of form and meaning - in other words, to qualify as independent clause-type, as N. McCawley (1973) does.

- (16) a. (Boy) Am I hungry!
 b. (#Boy) Is he hungry?

Similarly, Nye (2009, 2011a) shows that despite their surface similarity to *wh*-interrogatives, *how* pseudo questions (HPQs), such as the examples in (17), show formal markings of exclamation (the acceptability of intensifiers such as *totally* and *incredibly* appearing as adjectival modifiers within the *wh*-phrase) as well as of interrogativity (subject-auxiliary inversion). Interpretively too, like exclamations they contribute an evaluation made by the speaker, whilst like (many) questions, they seem to invite a response from the interlocutor. On the basis of these facts, Nye argues that the best way to account for the behaviour of HPQs is to consider them as a clause-type distinct from both interrogatives and exclamatives, with an interpretation which is similar to - yet distinct from - both questions and exclamations.

- (17) a. How (totally) cool is that?!
 b. How (incredibly) healthy am I?!

Third and finally, one of the most well-known cases of an apparent ‘mismatch’ between form and meaning is the rhetorical question. There appears to be no consensus in the literature as to how the class of rhetorical questions should be delimited. On a broad definition of rhetorical questions as structures which resemble interrogatives and yet which do not seek an answer, the exclamative-inversion sentences and HPQs discussed above may

²⁰ The two structures also have a distinct prosody, although this falls beyond the scope of the discussion here, as noted in footnote 2 above.

qualify as members.²¹ Certain works (Sadock 1971, Han 2002) assume a tighter definition of a rhetorical question however, which restricts membership to those clauses with interrogative form which are understood as assertions of the opposite polarity to that of the surface string, as is the case for the examples in (18).²² Once again, the issue arises as to whether rhetorical questions are differentiated from information-seeking questions by pragmatic usage alone, or by semantic or syntactic factors, or indeed by a combination of the above, a point raised by Frank (1990: 724). There is certainly a case to be made for considering rhetorical questions as constituting a distinct kind of clause, rather than a pragmatically-determined use of a standard interrogative clause, especially when one takes into account the detailed semantics which Han (2002) provides for them.

- (18) a. Do I go round telling *you* what to do? (≈ I don't go round telling you what to do)
 b. How could I have known that? (≈ There's no way I could have known that)

What emerges from the discussion in this section is that whilst the approach outlined in 2.2.3 above - whereby a range of illocutionary forces can arise from the semantics of a particular syntactically-defined clause-type - accounts well for many otherwise problematic cases, there are nevertheless limits to the range of additional interpretations which pragmatics can account for. Beyond these limits, one approach we can take to avoid resorting to the uncertain territory of indirect speech acts is to claim that we are actually dealing with a distinct clause-type: the difference in illocutionary force reflects an underlying formal distinction in syntax and semantics. Such a view is particularly plausible when supported by overt syntactic distinctions associated with this interpretation, as discussed for the cases in (16) and (17). In the absence of such indications, it is much harder to establish which differences in interpretation are pragmatically-determined, and which involve a distinct underlying representation. As will become clear in section 2.5 below, one's view as to whether the exclamative-inversion sentences, *how* pseudo questions and rhetorical questions discussed in this section constitute distinct clause-types, or rather alternative pragmatic uses of an existing clause-type is determined to some extent by the theoretical stance one adopts towards the mapping between form and meaning. It only makes sense to talk about 'mismatches' if we assume that in general there is some kind of a 'match'. The topic of matches and mismatches arises again in section 2.5, this time in the context of discussion of the syntax-semantics mapping.

²¹ Although unless the definition is refined further, so presumably would cases of interrogative form being used to express a request, such as *Could you pass the salt?*, for which an answer such a *Yes* is pragmatically odd, at least if not accompanied by an action complying with the request.

²² Sadock (1971: 224) claims for instance that '[Rhetorical] question-word questions can have the effect only of an assertion of opposite polarity'.

2.5 Linking syntactic and semantic types

Important though the question of the syntax-pragmatics mapping is to an understanding of clause-types, given the claim here that clausal interpretation is always mediated by semantics, and that it is not clear to what extent the concept of illocutionary force is of relevance in the embedded domain, the issue is not central to this work. The relationship assumed between the syntactic representation of a clause and its semantics, on the other hand, is of crucial importance. In the following section, I begin in section 2.5.1 with a discussion of the general approach I take in this work to the correspondence assumed between syntax and semantics in the grammar, before turning in sections 2.5.2 and section 2.5.3 to discuss various approaches which have been taken to capturing this correspondence as it applies to clause-type. These differ in terms of how tightly connected or otherwise the syntax and semantics of a (finite complement) clause are considered to be, and the division of labour assumed between the two components. Given the increasingly fine-grained distinctions which have been made between clause-types, in section 2.5.4 I ask how we know where to draw the line in positing new members in what seems to be an ever-richer inventory of clause-types.

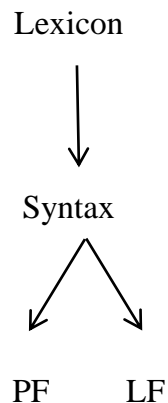
2.5.1 The architecture of the grammar: the syntax-semantics mapping

The correspondence assumed between syntax and semantics depends to some extent on the broader view of the architecture of the grammar one holds. The particular view I adopt is the (inverted) Y- or T-model (cf. 19) (which Irurtzun (2009) suggests may be attributed to Chomsky & Lasnik (1977), see also Danckaert (2011: 23-25) for discussion and references), some version of which is common to many approaches which fall under the term ‘mainstream generative grammar’.²³ Under such a view, the syntactic component combines lexical items which have been selected from the lexicon. The resultant structure is transmitted simultaneously to both the phonological component (“PF”) and, of most relevance for the discussion here, to the interpretive component (“LF”). The interpretation

²³ A term used by Culicover & Jackendoff (2005). It is intended to characterise a subset of generative approaches, roughly equivalent to those which Ginzburg & Sag (2000: 2 f.n. 1) group under the label ‘generative-transformational grammar’. I avoid the latter term to make clear that this subset includes a far broader range of approaches than the earlier Chomskyan work (see for instance Chomsky 1970, 1972) which made use of transformational rules. Whilst I differ from Ginzburg & Sag in my specific choice of terminology, I follow them in using the term ‘generative grammar’ as a cover-term for all generative approaches, both those which qualify as ‘mainstream generative grammar’, and those which do not, such as Ginzburg & Sag’s chosen framework of head-driven phrase structure grammar (HPSG), amongst other constraint-based grammar approaches.

a syntactic structure receives is thus computed on the basis of its parts (that is to say the lexical items from which it is constructed), and on the way in which these are combined. Hence different syntactic structures give rise to distinct interpretations and, conversely, distinct interpretations can be indicative of the fact that the underlying syntactic structures differ, once lexical semantics and pragmatic inference have been excluded as potential sources of meaning differences.

(19) **The (inverted) Y-/T-model**



The idea that the interpretation of an expression is constrained by its syntactic structure is formalised as the Principle of Compositionality. A recent statement of the principle by Partee (2006) is given in (20).

- (20) **The Principle of Compositionality:** The meaning of an expression is a function of the meanings of its parts and of the way they are syntactically combined.
[Partee (2006:1)]

Szabó (2012) emphasises that ‘commitment to compositionality requires allegiance to no [one] particular sect of syntacticians’: many syntactic frameworks are compatible with (some version of) the Principle of Compositionality. Yet although compositionality is a tenet of most work in mainstream generative grammar, there is nevertheless considerable variation in terms of how precisely the relationship between syntax and semantics is envisaged, as will become clear in the course of the specific discussion of the syntax-

semantics mapping in relation to clause-types, given in the following sections.²⁴ There are three key regards in which accounts differ in the precise relationship they envisage between the syntactic structure of a clause and the interpretation it receives. The first is in the level of syntactic detail which is taken into consideration in determining whether or not two syntactic structures qualify as distinct for the purposes of semantic interpretation. The second concerns the tightness of the mapping between syntax and semantics - whether or not semantic distinctions have a direct syntactic correlate, or if the connection between the two levels is somehow looser. The third is the extent to which interpretive differences are attributed to a formal difference in semantics on the one hand, and to pragmatic inference and lexical semantics on the other. In the following sub-sections I present certain specific approaches to the syntax-semantics mapping, which differ from one another in precisely the three regards identified above.

2.5.2 Semantic interpretation mapped from syntax

In discussing accounts which take a clear theoretical stance on the syntax-semantics mapping in clauses, the first approach which I consider is that of Grimshaw (1979). This account is particularly significant, for two reasons. Firstly, it contains an influential proposal for the distribution of English finite clausal complements, which I discuss and assess in considerable detail in Chapter 5. Secondly, and most relevantly for the current discussion, it makes a clear distinction between the syntax of the clauses in question, and the semantic type to which they belong.

Grimshaw (1979) posits that matrix predicates select for FCCs on the basis of the ‘semantic type’ of these complement clauses. In my discussion of her account, I rather use the term ‘interpretive type’, for reasons discussed in footnote 7 above. The interpretive types identified by Grimshaw are propositions, questions and exclamations, illustrated by the FCCs in (21) below. These are distinguished on the basis of ‘systematic differences in semantics’ (Grimshaw 1979: 285). Questions and exclamations are differentiated on the basis of the property of ‘(in)determinacy’, a notion which Grimshaw (1979: 283) attributes to Bresnan (1972). This property concerns whether or not the value of the variable associated with the *wh*-expression is fixed. Whilst ‘[i]nterrogatives are characterized by indeterminacy in the value of the variable represented by the *wh*-word’, ‘[e]xclamatives, in

²⁴ Compositionality may also play a role in other approaches. For instance, Kay & Michaelis (2009: 2271) state that ‘[i]t is sometimes supposed that constructional approaches are opposed to compositional semantics. This happens to be an incorrect supposition’. I limit my theoretical discussion to ‘mainstream generative grammar’ however (see f.n. 23), as this is framework within which this work is situated.

contrast, require determinacy on the part of the *wh*-variable’ (Grimshaw 1979: 284).²⁵ An additional restriction placed on exclamations is that ‘the value of *wh* must be in some sense extreme’ (Grimshaw 1979: 284). No semantic characterisation is given for propositions. In the discussion below, I follow Grimshaw in focussing my attention on questions and exclamations.

- | | |
|---|--------------------------|
| (21) a. John thought [that Bill saw someone]. | [proposition complement] |
| b. John wondered [who Bill saw]. | [question complement] |
| c. I'm surprised [at what a large house he lives in]. | [exclamation complement] |
- [Grimshaw (1979: 279, 281) (ex. (1a, c) and (4b))]

What is the nature then of the connection between the syntactic strings of the complement clauses in (21), and the interpretive types to which they are assigned? According to Grimshaw (1979: 286), there are ‘rules of interpretation...applying at surface structure. These rules will, for instance, interpret clauses with initial *wh*-phrases as either interrogative or exclamative’ (Grimshaw (1979: 286)).²⁶ In this regard, syntax is assumed to constrain interpretation. The suggestion is that clauses introduced by a *wh*-phrase are limited to receiving one of these two interpretations. On Grimshaw’s (1979: 283) view, interrogative and exclamative complements ‘do not differ in syntactic form in any systematic way; both are derived by *Wh* Fronting, and at the surface are composed of a *wh*-phrase followed by a clause in which there is a “gap”’. Hence, she concludes, they ‘do not have distinct syntactic representations’ (Grimshaw 1979: 285). Therefore, on the assumption that the interpretive rule for both question and exclamation interpretation takes a clause headed by a *wh*-expression as input, a *wh*-clause complement can in principle be mapped to either of these interpretations.²⁷ In support of this view, Grimshaw (1979: 282) provides examples such as

²⁵ Grimshaw (1979) uses the terms ‘interrogative’ and ‘exclamative’, seemingly interchangeably with ‘question’ and ‘exclamation’ to refer to semantic types. I reserve the former terms for syntactic types, and the latter for semantic types, as discussed in section 2.2.2 above.

²⁶ Grimshaw (1979: 286) then assigns variables to range over these semantic types: Q for *wh*-clause complements assigned the interpretation of a question, and E for those assigned the interpretation of an exclamation. The selectional requirements of matrix predicates can then be stated in terms of such variables, abstracting away from individual differences between particular instances of the type.

²⁷ Pesetsky & Torrego (2000) also invoke an interpretable principle for the interpretation of matrix CPs with a *wh*-expression in specifier position as either interrogative or exclamative. However, in their account, the particular interpretation assigned does depend on an underlying syntactic distinction: exclamatives involve an additional non-*wh* specifier layer for CP, whereas interrogatives do not. See discussion and critique in Radford (2000). Radford himself rather distinguishes interrogatives and exclamatives in terms of the featural make-up of the C head.

those in (22) and (23). Whilst the same surface string is involved for the FCCs in (22a) and (23a), and for (22b) and (23b) respectively, they are nevertheless distinguished in terms of their interpretive type: the FCCs in (22) are exclamations, whilst those in (23) are questions. This is an apparent case of the same syntactic configuration being mapped to two distinct interpretations.

- | | |
|--|--------------------------|
| (22) a. It's amazing [how tall John is]. | [exclamation complement] |
| b. I'm surprised at [how fast John can run]. | [exclamation complement] |

- | | |
|---|-----------------------|
| (23) a. Fred will ask [how tall John is]. | [question complement] |
| b. Fred is wondering [how fast John can run]. | [question complement] |
- [Grimshaw (1979: 282) (ex. (9) and (10))]

Grimshaw (1979: 281) recognises that not all syntactic strings introduced by a *wh*-expression can be mapped to both question and exclamation interpretation, observing correctly for instance that ‘the configuration *what a (Adj) N* is not a possible interrogative structure’. Her account does not provide an answer to ‘the question of exactly how *whether* is to be limited to interrogatives and *what a* to exclamatives’ (Grimshaw 1979: 286 f.n.6), but this is seen as one of a limited number of exceptions to the general situation in which questions and exclamations involve the same syntactic string. She is also aware that there are other, apparently syntactic, distinctions between exclamatives and interrogatives, for instance the possibility of adjectival modifiers within the *wh*-phrase in the former case (cf. 24) but not the latter (cf. 25). However, these are rather attributed to the semantic property of determinacy vs. indeterminacy, which she claims ‘explains many of the differences between exclamatory and interrogative complements that have been attested in the literature’ (Grimshaw 1979: 284). The issue becomes thornier, however, in the light of numerous other more subtle syntactic properties which have been identified as distinguishing exclamatives from interrogatives (cf. Elliott (1974), and discussion in Chapter 3), which cast doubt on the claim that the two are the same in terms of underlying syntactic representation (see also Emonds (1992) for a critique of Grimshaw (1979) in this regard).²⁸

²⁸ In brief, Emonds (1992: 219-220) argues that on the basis of the evidence Grimshaw (1979) provides, ‘the *only* similarity between exclamatory and interrogative complements is that they both involve WH fronting, probably to a common landing site’ [his emphasis]. Following Chomsky’s (1977) claim that the underlying structure of relative clauses and indirect questions differs (see also the discussion of Baker’s (1970) proposal in footnote 38 below), Emonds (1992: 220) concludes that ‘overt WH Fronting across clausal types is *not* a sufficient condition for postulating identical underlying structure’. Thus Emonds disputes Grimshaw’s (1979) claim that, though interpretively distinct, interrogative and exclamative clauses involve a common syntactic structure. He uses this to argue in favour of syntactic, as opposed to semantic, selection of finite clausal complements by matrix predicates.

- (24) a. It's amazing [how very tall John is]. [exclamation complement]
 b. I'm surprised at [how very fast John can run]. [exclamation complement]

- (25) a. * Fred will ask [how very tall John is]. [question complement]
 b. * Fred is wondering [how very fast John can run]. [question complement]
 [Grimshaw (1979: 282) (ex. (14) and (15))]

Not only does Grimshaw (1979) posit the possible association of a single syntactic structure with what she describes as ‘radically different semantic properties’ (Grimshaw (1979: 283)), conversely, her account is also compatible with the idea that ‘complements of different syntactic form are mapped onto the same semantic representation’ (Grimshaw (1979: 280)). Although she does not provide concrete illustration of such a case, Ginzburg & Sag (2000) do so in their more recent account. Despite being implemented in a different framework to that of Grimshaw (1979), Ginzburg & Sag’s account similarly makes a distinction between syntactic structures and the interpretive types associated to these.²⁹ Whilst Grimshaw posits interpretive rules which apply to syntactic structures, Ginzburg & Sag postulate constructions which associate a specific interpretation with a particular syntactic structure. Ginzburg & Sag (2000: 10) state that ‘[t]he *clause* [...] is a special kind of construction that correlates a particular syntactic combination [...] with a kind of *message*. Messages [...] are the semantic kinds most fundamental to communication: propositions, questions, facts and outcomes [their emphasis]’. In their system, both exclamation and factive *that*-clauses (the properties of which are discussed in Chapter 3) qualify as ‘facts’, despite the obvious differences in their surface string: exclamatives (cf. 26a) are introduced by *wh*-expressions, factive clauses by the complementiser *that* (cf. 26b).³⁰ Conversely, non-factive *that*-clauses (cf. 26c), similarly introduced by the complementiser *that* and often string identical to factive *that*-clauses, qualify as a different

²⁹ As noted in footnote 23, Ginzburg & Sag (2000) implement their system within head-driven phrase structure grammar (HPSG). They give a fully worked out semantics for their system, modelled in situation semantics. As my account, like Grimshaw’s (1979), falls within mainstream generative grammar, I do not discuss the technicalities or precise implementation of their system, or the architecture of the grammar that they assume. I introduce their account here to provide illustration of the situation in which the same semantic type is associated with syntactic structures which, at least on the surface, appear quite distinct, a state of affairs which Grimshaw (1979) notes, but does not exemplify.

³⁰ Wrongly predicting that they will have the same distribution, under Ginzburg & Sag’s (2000) view that the distribution of finite clausal complements under matrix predicates is determined only by the semantic type of the complement. See detailed discussion in Chapter 5.

type, that of proposition. (26a) and (26b), thus appear to show the situation which Grimshaw (1979) notes but does not discuss, whereby complement clauses which are apparently syntactically quite distinct can be assigned to the same interpretive type. This raises the question of whether or not there is a limit to the degree of syntactic difference which two structures can show whilst still qualifying as members of the same interpretive type.³¹

- (26) a. She's forgotten [what a nightmare it had been].
- b. She'd forgotten [that it had been a real nightmare].
- c. She'd claimed [that it had been a real nightmare].

On the theoretical assumptions that 'syntactic structure constitutes the input to rules of interpretation' (Grimshaw (1979: 287)), two syntactic structures must hold some property in common in order to be mapped to the same interpretive type. Syntactic structure constrains the range of interpretations available to a clause, even if it does not determine a single interpretation. The question then is determining which syntactic properties contribute to determining clause-type, and which do not. To summarise then, in accounts such as those given by Grimshaw (1979) and Ginzburg & Sag (2000), whilst there are restrictions on the semantic interpretations available for a particular syntactic string, there is by no means a one-to-one mapping between syntactic structure and semantic type. On the one hand, certain syntactic structures can be mapped to multiple - and quite diverse - interpretations. On the other hand, closely similar interpretations can arise from syntactic structures which are on the surface quite distinct. In the following sub-section, I turn to alternative accounts which see semantic interpretation as much more sensitive to syntactic subtleties.

2.5.3 Semantic interpretation encoded in syntax

The accounts I consider in this section posit a much tighter connection between syntax and semantics than those discussed in the previous section. For presentational purposes I divide these into three types, although this is by no means intended as an exhaustive system of classification, nor to suggest that there can be no overlap between these. The first kind of account which I consider is one which originates in the speech act literature, and which explains clause-type distinctions in terms of the idea that 'sentences in the imperative, interrogative or declarative, and perhaps other kinds of sentence format, are implicit performatives' (Levinson 1983: 244). Of relevance to the discussion here is the fact that

³¹ The *that*-clauses in (26b) and (26c) provide further illustration of the situation discussed in relation to Grimshaw's (1979) account and the examples in (24) and (25) above, where despite the absence of any distinction in the surface strings, the complement clauses are associated with different interpretive types. Such cases rather raise the question of whether or not there is a limit to the range of interpretive types that can be associated with a single syntactic string.

this view has been given a linguistic encoding, such that root clauses are taken to involve a non-overt performative verb which contributes the illocutionary force of the utterance. In such accounts then, syntax maps not only to semantics, but also to a particular pragmatic interpretation. The second type of account, discussed in section 2.5.3.2, are those where key syntactic ‘ingredients’ (*wh*-expressions and other operators, for instance) are taken to have a direct semantic correlate. The third, discussed in section 2.5.3.3, are those where semantic interpretation is determined by the underlying syntactic representation of the clause, in terms of the nature and/or complexity of the structure involved. Despite the differences in implementation, what the three types of accounts have in common, in contrast to those discussed in section 2.5.2, is that syntactic structure does not simply constitute ‘the input to rules of interpretation’ (Grimshaw 1979: 287), syntactic structure itself encodes (certain aspects of) interpretation.

2.5.3.1 The performative hypothesis

The term ‘performative’ originates in the work of Austin (1962), and is used to designate a class of utterances which serve to perform actions. These are illustrated in (27) with examples taken from Levinson (1983: 228), whose discussion of the work of Austin (1962) and Searle (1969) informs this section. Performatives are deemed to be evaluated not in terms of their truth or falsity, as most (declarative) sentences are, but rather in terms of their felicity, with felicity conditions defining whether or not the use of a performative in a particular context is successful.

- (27) a. I bet you six pence it will rain tomorrow.
 b. I hereby christen this ship the H.M.S Flounder.
 c. I apologize.
 d. I dub thee Sir Walter. [Levinson (1983: 228)]

Building on Austin’s suggestion that utterances which are not explicit performatives of the kind in (27) may nevertheless in fact be treated as implicit performatives, we arrive at the performative hypothesis (Levinson 1983: 247), which is idea that ‘every sentence has as its highest clause in deep or surface structure...a structure that corresponds to the overt prefix in the explicit performative, whether or not it is an overt or explicit performative in surface structure’ (Levinson 1983: 247).³² This entails that ‘sentences in the imperative, interrogative or declarative, and perhaps other kinds of sentences format, are implicit performatives’ (Levinson (1983: 244)) ‘so that the utterance *Go!*, for example, may be

³² As Levinson (1983: 244 f.n.12) notes, ‘The term *performative prefix* is used here, as in the speech act literature, as a shorthand for ‘sentence-initial performative phrase’ or the like; from a linguistic point of view, of course, such a phrase is not a prefix’.

variously performing the giving of advice, or an order, or doing entreating, or daring, according to context' (Levinson 1983: 234).

This performative hypothesis has been given a linguistic encoding by Ross (1970) and Sadock (1974), amongst others, with the idea that '[w]e may also treat the three basic sentence-types in English (and most languages), namely the imperative, the interrogative and the declarative, as containing grammaticalized conventional indicators of illocutionary force' (Levinson 1983: 244). Thus illocutionary force itself is encoded in the syntax upon such an approach. The specific proposal made is that utterances such as those in (28) fact underlyingly involve structures like those in (29): they are introduced by covert 'performative prefixes' such as *I request you to*, *I ask you whether*, *I state to you that* (Levinson 1983: 244) which are supposed to contribute the force of requesting, asking and stating respectively. In this way, '[i]llocutionary force is semantic (in the truth-conditional sense) and is fully specified by the meaning of the performative clause itself' (Levinson 1983: 250).

- (28) a. Sit down.
 b. Would you like a cup of tea?
 c. It's going to rain later.
- (29) a. I request you to sit down.
 b. I ask you whether you would like a cup of tea.
 c. I state to you that it's going to rain later.

Even if the performative hypothesis may be deemed 'at first sight, to offer a significant and general improvement over the earlier suggestions for dealing with the syntax of sentence types' (Levinson 1983: 250), it becomes untenable, at least in its strongest form, in the face of numerous semantic and syntactic problems which have been identified with it (quite apart from the general difficulties associated with the direct encoding of illocutionary force in the syntax, discussed in section 2.4.1 above). I do not discuss these here, but refer to the detailed discussion in Levinson (1983: 251-263). It is the lack of currency in contemporary linguistic approaches that subscribe to the performative hypothesis which motivates my decision to discuss these accounts first, even though they post-date accounts such as those of Chomsky (1957) and Katz & Postal (1964) discussed in the next section.³³ Despite differing considerably in implementation, modern approaches to the syntax-interpretation connection

³³ Note however that there is recent work which posits covert structure above CP for the encoding of other discourse-related properties, in particular relations between the speaker and the hearer, for instance the Speech Act projection of Speas & Tenny (2003), which is modified by Haegeman & Hill (2011), and adopted by Miyagawa (2012).

in clauses can be found which are more in the spirit of these latter works, in that they attribute clausal force to properties within the clause itself, rather than to additional embedding structure. This is also the approach which I will take.³⁴

2.5.3.2 Semantic interpretation for syntactic components

In positing ‘an abstract morpheme “Q”’ (Baker 1970: 197) in the underlying syntax of English interrogatives, Katz & Postal’s (1964) account is perhaps the earliest to relate the characteristic syntactic and semantic properties of a particular clause-type to a specific syntactically-encoded component within the clause itself. The identification of such a morpheme is ‘syntactically motivated’ (Baker 1970: 197): rules such as subject-auxiliary inversion (SAI) make reference to it. Yet it plays a role in interpretation too: it ‘can serve to distinguish the semantic readings of questions from the semantic readings of related declaratives’ (Baker 1970: 197). As Baker (1970: 200) explains, for Katz & Postal (1964: 86), ‘Semantically this Q morpheme is interpreted as a performative, having a reading which is abbreviated roughly as ‘I request that you answer’.³⁵ Crucially however, this interpretation is encoded as a component of the clause itself, not as an additional layer of embedding structure, as it was in the linguistic implementations of the performative hypothesis considered in section 2.5.3.1. The presence of the Q morpheme in sentence initial position, in combination with a *wh*-expression somewhere within the sentence for the *wh*-fronting rule to target, are thus identified as the key syntactic components required for a root interrogative clause.³⁶

Baker (1968; 1970) extends this proposal to apply equally to embedded interrogatives, such that both root and embedded interrogative clauses are characterised by the presence of the

³⁴ Levinson (1983) makes no reference to embedded clauses, presumably because, in line with the predominant view in the pragmatics literature, speech acts are deemed unable to be embedded (see discussion in section 2.3 above). Note that whilst the ‘matrix predicate + finite clausal complement’ cases of interest in this work bear a resemblance to the structures in (29), not only is a broader range of predicates permitted in the former cases, but these are also not restricted to involving a 1st person singular subject or to being in the present tense as the ‘performative prefixes’ are.

³⁵ Like the other performative accounts discussed above in section 2.5.3.1, the Q morpheme is a syntactic encoding not only of semantic interpretation, but also of a specific illocutionary force. For the difficulties which arise from such a conception of the connection between syntax and pragmatics, see the discussion in section 2.4.1 above.

³⁶ Katz & Postal’s (1964) proposal as outlined above applies to matrix clauses. They propose that embedded interrogatives similarly involve a *wh*-expression, but not the presence of a Q morpheme. Support for this analysis comes from the syntactic fact that embedded interrogatives do not generally show SAI (although certain types of interrogatives in certain varieties of English prove exceptions to this generalisation, as discussed in Xchapter 3), and from the semantic fact that the performative interpretation which Katz & Postal (1964) associate with the Q-morpheme would clash with the contribution of the overt embedding predicate which an embedded interrogative by definition requires.

Q-morpheme.³⁷ Baker's conception of the Q-morpheme is somewhat different to that of Katz & Postal: it is no longer deemed responsible for SAI, nor is it associated with a performative interpretation, but it is considered crucial for triggering *wh*-movement.³⁸ Nevertheless, the general function assumed for the Q-morpheme is similar, in that it is again a syntactically encoded component which is considered responsible both for a key syntactic property of interrogatives, and for the characteristic interpretation that they receive. In Baker's (1970: 212) own words 'a sentence-initial question morpheme [...] makes it possible to describe the connection between the operation of the [*wh*] movement rule in a particular sentence and the semantic interpretation given to that sentence'.

Bresnan (1970, 1972), having argued for a COMP position in syntactic structure (the precursor to CP in current work), reinterprets such Q-morpheme accounts in terms of the presence of a *wh*-complementiser in the underlying structure of interrogative clauses, drawing a parallel between the behaviour of this putative complementiser, and that of recognised complementisers such as *that* and *for*. Munsat (1986) refines this account, positing two distinct *wh*-complementisers, *wh*-Q and *wh*-*that* (in addition to simple *that*) which correspond to interpretively distinct *wh*-clauses. Bresnan's proposal had far-reaching consequences, as to this day complementisers (and *wh*-expressions) are often deemed to play a crucial part in determining the interpretation of a clause, as the accounts discussed below will make clear.

In her influential account of clause-typing (drawn on in subsequent work by e.g. Watanabe (1993)), Cheng (1991: 43) similarly denies the need to posit an underlying Q-morpheme in the syntactic representation of an interrogative in order for question interpretation to arise. She rather relates this to the presence of a *wh*-particle or a *wh*-word within the CP layer of the clause, as the formulation in (30) makes clear.³⁹ Cheng's (1991) account clearly merits classification in this sub-section due to the crucial role a *wh*-particle or a *wh*-expression plays in generating a question interpretation. However, the fact that the mere presence of

³⁷ Baker (1970) is an example of a true 'generative-transformational' account (see discussion in footnote 23).

³⁸ This means that in Baker's (1970) account, unlike in Katz & Postal's (1964) account, *wh*-movement has a different trigger in interrogatives to in relative clauses, for instance. Thus *wh* as a formal feature, unlike Q, does not have a consistent semantic correlate. Emonds (1992: 227 f.n. 8) makes a similar point, noting that the 'proposal to identify WH in both questions and exclamatives exemplifies Chomsky's (1957: 101) position "that undeniable, though only imperfect correspondences hold between formal and semantic features in language"'. For Emonds (1992), WH is a formal feature which syntactic rules can make reference to. Clauses involving this feature can serve as the input to interpretive rules which yield interpretation as either a question or an exclamation. For more discussion of the nature of *wh*-features, see Chapter 6, section 6.2.2.

³⁹ As noted by Aboh & Pfau (2010: 115), and as will become clear in the light of the following chapters, *wh*-clauses cannot always be equated with interrogatives or questions, however. Aboh & Pfau's (2010) own account is discussed footnote 49.

these items alone is not enough, but that they in addition must occupy a particular structural position means that it could also be viewed as a pre-cursor to Rizzi's (1997) cartographic account, discussed below in 2.5.3.3.

(30) Clause Typing Hypothesis

Every clause needs to be typed. In the case of typing a *wh*-question, either a *wh*-particle in C° is used or else fronting of a *wh*-word to the Spec of C° is used, thereby typing a clause through C° by Spec-head agreement. [Cheng (1991: 29), ex. (9)]

More recently, particularly influential work on clause-types and clausal force which posits a direct connection between the syntactic components involved and the resultant interpretation of the clause has been carried out by Paul Portner and Rafaella Zanuttini and their collaborators.⁴⁰ They have offered accounts of various specific clause-types, from which a common picture emerges. They argue explicitly for a distinction between clauses at each of the three levels discussed in section 2.2 above, and summarised in Table 1 in section 2.2.4: syntax, semantics, and pragmatics. They put forward the view that each clause-type involves key syntactic ingredients necessary to qualify for membership in that particular class. An exclamative, for instance, must involve both a *wh*-operator variable relation, and a factive operator (Zanuttini & Portner 2003). Beyond this basic requirement, there is scope for variation in the syntax of exclamatives, as Zanuttini & Portner (2003) illustrate with differences between the structures in English, Italian, and the Italian dialect of Paduan, which are all nevertheless taken to share these crucial ingredients.⁴¹ The motivation for positing that these components in particular are required is that in combination these are seen to be the source of the semantic denotation of exclamations. The *wh*-operator variable relation gives a set of propositions, and the factive operator, originally posited as a syntactically-encoded meaning component of factive *that*-clauses by e.g. Watanabe (1993) (see section 2.5.3.2 below) gives the presupposition of truth.^{42 43} Zanuttini & Portner (2003) go on to illustrate that the only pragmatic use a clause with this kind of a denotation can be put to use as an exclamation.

⁴⁰ See for instance Zanuttini & Portner (2003) on exclamatives, and Zanuttini, Pak & Portner (2012) on jussive clauses (imperatives, promissives and exhortatives). Details of their project on clause-types, and further references to their work are available at: <http://www9.georgetown.edu/faculty/portnerp/nsfsite/nsfframeset.htm>. Last accessed 25.01.2013.

⁴¹ In much the same way as Baker (1970) assumes his Q-morpheme to be present in the underlying representation of questions cross-linguistically.

⁴² Melvold (1991) offers an earlier account in a similar vein, although the operator she posits is an iota operator which contributes definiteness, similarly leading to a factive interpretation for a *that*-clause complement, albeit by slightly more indirect means.

⁴³ At least in matrix clauses. For finite complement clauses, they rather consider the embedding predicate to be the source of the factivity. In Chapter 6 I present arguments against this view.

I return to Zanuttini & Portner's (2003) proposal in more detail in Chapter 6, section 6.4. However, there are two crucial points of relevance for the current discussion which I emphasise here. The first is that Zanuttini & Portner's (2003) account departs from many of the accounts discussed in this section (although see also Katz & Postal (1964)) in that clausal force depends not on the presence of a single syntactically encoded meaning component, but on the combination of several within a single clause. The second is that whereas for Grimshaw (1979), a *wh*-clause is open to interpretation as either an interrogative or an exclamative, with no distinction in the syntax underlying the two, under Zanuttini & Portner's (2003) approach, in order to qualify as an exclamative a *wh*-clause must differ from an interrogative *wh*-clause in the presence of a factive operator in its underlying syntax. Thus even string-identical interrogatives and exclamatives differ in terms of their structural representations. As is the case for the earlier accounts also discussed in this sub-section, the particular interpretation a clause receives is dependent on the presence of certain syntactic components. However in Zanuttini & Portner's (2003) account, this involves the compositional interpretation of a combination of syntactic components, rather than the presence of a primitive element associated with (a particular) clause-type.

2.5.3.3 Semantic interpretation for clausal structure

The earliest accounts which associate the interpretation of a clause with the structural configuration underlying it are those which posit a difference in the size of the structure involved. Specifically, clauses are seen to differ in terms of whether they involve a single CP layer or a recursive CP structure. The proposal was initially made for embedded clauses which (do not) involve V2 (Iatridou & Kroch 1992) or topicalisation (Authier 1992), but - more relevantly for present concerns - was also quickly adopted for the distinction between non-factive and factive *that*-clauses (Watanabe 1993; de Cuba 2007) and resolute and true interrogative complements (McCloskey 2006). The distinction was motivated by the possibility for certain syntactic processes to apply in non-factive *that*-clauses and true interrogatives, but not in factive *that*-clauses or resolutives, as illustrated and discussed in Chapter 3.

The difference in interpretation between clauses involving a single CP, and those with a recursive CP structure is generally attributed to one of two different sources. In one line of approach, it is taken to stem from the fact that in the recursive CP cases, there is extra structure available to host an additional operator, distinguishing such clauses interpretively from the single CP cases. In the other, the two structures are themselves each directly associated with a distinct semantic interpretation (cf. de Cuba 2007; de Cuba & Ürögdi 2010a,b). The first kind of approach, exemplified by de Cuba's (2007) proposal that the extra CP layer involved in a non-factive *that*-clause hosts an assertion operator responsible

for the resultant non-factive interpretation, illustrates a point which was made in the introduction to section 2.5.3.⁴⁴ This is that the kinds of account presented in section 2.5.3.2, and those discussed here in section 2.5.3.3 are not mutually exclusive: in this case we have both a difference in the underlying clausal structure, and the corresponding presence of an additional syntactic component.

The final kind of account considered here takes a different position again. In the cartographic accounts discussed in the remainder of this section, a distinct semantic interpretation is assigned not to the CP layer as a whole, but to each of the many individual projections which are assumed to make it up. We move thus from an emphasis on the number of projections in the CP layer, to the nature of these projections.⁴⁵ As will become clear in the course of the discussion below, there is nevertheless some considerable variation between accounts within the cartographic framework when it comes to certain aspects of the syntax-semantics mapping for clause-types.

Cartography is an approach which aims to provide detailed maps of the structure of sentences. Key works include Rizzi's (1997) mapping of the CP, and Cinque's (1999) detailed investigation of the TP, see also Cinque & Rizzi (2008) and Shlonsky (2010) for good overviews of the framework and some of its major insights, as well as discussion of how it relates to minimalism. The findings of cartography suggest that the basic CP-TP-VP structure assumed for the clause in fact involves numerous functional projections within each of these three 'zones' (and potentially also within the DP (Cinque 1996), PP (Koopman (1993); Cinque & Rizzi (eds.) (2010)), and AP (Corver (1997))), although I restrict my

⁴⁴ Note that whilst de Cuba (2007) and most recent accounts in this vein posit a more complex CP structure for non-factive *that*-clauses than for factive *that*-clauses, in Watanabe's (1993) original proposal it is rather factive *that*-clauses which involve a recursive CP, providing a site to host a factive operator responsible for the interpretation of such clauses. Non-factive *that*-clauses are taken to involve a single CP - the converse of de Cuba's (2007) proposal, thus.

⁴⁵ Note that nothing in principle prevents the former kind of account from being reinterpreted as the latter. McCloskey (2006: 102) explicitly states that 'one might well interpret the [CP recursion] structure...in terms of recent work deriving from Rizzi (1997) - work which develops the idea that rather than a single C-projection there is an elaborated series of functional projections devoted to the expression of information-structural notions like Focus and Topic, and also to illocutionary and clause-typing information (see especially Rizzi (2004)).' Conversely, one strand of work in the Cartographic tradition of Rizzi (1997) considers certain clauses (including factive complement clauses) to involve a 'truncated' CP i.e. where certain of the contentful projections seen to make up this layer are absent (e.g. Haegeman 2006), echoing the earlier non-cartographic approaches discussed above. More recent work views this not as the literal absence of structure, but as its unavailability as a landing site due to an intervention effect from another operator, for instance (Haegeman 2012a,b): in the words of Haegeman (2012b: 112), 'what seems to be structural truncation can be derived through intervention'. When so construed, there seems to be a connection with the accounts discussed in 2.5.3.2, in that the crucial distinguishing factor is the presence or absence of a particular syntactic component. As a side-effect, this can give rise to the impression of a difference in the amount of structure present.

attention here to the clausal domain. Detailed consideration of the ordering and interaction of material shows that elements which target the same zone do not occupy exactly the same structural position. The outcome is a proliferation of rigidly ordered functional projections, involving a contentful (although potentially phonologically null) head, and a specifier position.

The postulation of multiple contentful projections holds for the clausal left periphery - the CP - just as it does for other zones of the clause. The clausal left periphery is taken to be ‘the interface between syntax and pragmatics, the locus where informational characteristics of pragmatic relevance receive a syntactic encoding’ (Benincà & Poletto (2004: 73)). This results in ‘a very transparent approach to the interface between syntax and semantics-pragmatics: peripheral functional heads can be seen as overt “flags” carrying very transparent instructions to the interface systems on how their immediate dependents are to be interpreted’ (Cinque & Rizzi (2010: 51)). In the words of Cinque & Rizzi (2010: 52) then, ‘The cartographic studies can be seen as an attempt to “syntacticize” as much as possible the interpretive domains, tracing back interpretive algorithms for such properties as argument structure ... scope, and informational structure...to the familiar ingredients uncovered and refined in half a century of formal syntax’. Crucial here is the qualification ‘as much as possible’. How much semantic and/or pragmatic information is it possible, and indeed desirable, to encode in the syntactic structure? There is no consensus in this regard. The answer of course depends primarily on ‘the extent to which these efforts are empirically supported’ (Cinque & Rizzi (2010: 52)). However, it is clear that theoretical motivations also play a part. Whilst cartographic approaches postulate a tighter connection between syntax and semantics than do the accounts discussed in 2.5.3.1 and 2.5.3.2 above, within the framework there exist a range of views as to how much interpretive information should be encoded in the syntax.

Rizzi (1997) is the first detailed cartographic study of the left periphery, which moves in the direction of positing syntactic structure in the clause which is related to the specific function of clause-typing, or force-marking.⁴⁶ He posits a particular projection, ForceP, as the highest within the CP domain alongside projections dedicated to hosting topics and foci, and a finiteness projection which is the lower boundary of the CP, interacting with IP below. It is ForceP which is of interest to us here, for its role in determining the interpretative type of the clause. According to Rizzi (1997: 262), it hosts complementisers, which ‘express the fact that a sentence is a question, a declarative, an exclamative, a relative, a comparative,

⁴⁶ For Rizzi (1997: 262), ‘the clausal type (Cheng 1991), or the specification of Force (Chomsky 1995)’ are different terms for the same concept. I thus take ‘force’ for Rizzi to mean clausal force, rather than illocutionary force, although he does not make an explicit distinction.

an adverbial of a certain kind, etc.’.⁴⁷ However, even when there is no ‘overt morphological encoding on the head (special C morphology for declaratives, questions, relatives, etc.)’ (Rizzi 1997: 262), ForceP is nevertheless implicated in determining the interpretation of the clause in question ‘by simply providing the structure to host an operator of the required kind’ (Rizzi 1997: 262).

In Rizzi’s (1997) account then, there is a single position in the syntactic structure of the clause which is dedicated to determining the semantic interpretation of the clause in question. The particular interpretation which arises depends upon the nature of the (potentially null) element occupying the head or specifier position of ForceP. A question particle as head would type the clause as a question, a relative pronoun in spec-CP would indicate that we are dealing with a relative clause, for instance. In this regard, Rizzi’s (1997) account is similar to those discussed in section 2.5.3.2 above, and in particular to Cheng (1991), as for Rizzi it is not only the presence of a particular syntactic component which is crucial for ensuring that a clause receives a particular interpretation, but also the position in which this element occurs. As in these approaches however, and unlike the accounts of Grimshaw (1979) and Ginzburg & Sag (2000) discussed in section 2.5.2, whilst the possibility of an interrogative clause and an exclamative clause being string identical is allowed for, such a surface similarity is not necessarily taken to be indicative of identity in the underlying syntactic representations in the two cases. In order for the two distinct interpretations to arise, ForceP must in the one case involve an element triggering question interpretation, and in the other an element triggering exclamation interpretation - a different *wh*-expression and/or (null) Force head, for instance.⁴⁸ More generally, once interpretive type is syntacticised as a projection in the structure, then from the fact that two clauses differ in interpretation we can deduce that they also differ in underlying syntactic representation, even if they involve the same surface string, as was also the case for the accounts discussed in 2.5.2 above. In the particular case of interrogatives and exclamatives, the numerous distinguishing properties which are presented in Chapter 3 support this conclusion. Whilst such an approach might appear well-motivated when we are dealing with broadly-accepted types of clause such as interrogative and exclamative, which involve what Grimshaw (1979: 283) deemed to be ‘radically different semantic properties’, the question arises as to whether or not more subtle interpretive differences - between types of interrogative clauses for

⁴⁷ As noted in footnote 5 above, Rizzi (1997) mixes terminology which other authors keep distinct for syntactic types (declarative, exclamative) and interpretive types (question) of clauses.

⁴⁸ The fact that *whether* is permitted in interrogatives but not exclamatives, *what a* in exclamatives but not interrogatives is no longer mysterious, as it is on Grimshaw’s (1979) account, if the former is an interrogative element with the ability to type a clause as interrogative when occupying spec-ForceP, and the latter an exclamative element which types a clause as exclamative when inserted in this position.

instance, should also be taken to be indicative of underlying syntactic distinctions. I return to this issue in section 2.5.4 below.

Subsequent work by certain other cartographers has tied interpretive differences to syntactic differences even more closely. Whilst in Rizzi's (1997) account, a single projection in the clausal left periphery, ForceP, is associated with determining the interpretive type of the clause, other authors have posited distinct, contentful functional projections within the CP zone, each capable of hosting different *wh*-expressions and complementisers, and each associated with a distinct interpretation. On the basis of Italian data, in later work Rizzi (2001) himself proposes a distinct projection, Int(errogative)P in the left periphery of the clause which hosts the *wh*-expression *perché* 'why' and the interrogative complementiser *se* 'if'.⁴⁹ Other accounts have proposed additional projections for other clause-types. In Munaro & Obenauer's (1999) account, for instance, *wh*-expressions in exclamatives target a different position to *wh*-expressions in interrogatives. Such a view is motivated by empirical considerations. Contra Grimshaw (1979), Munaro & Obenauer (1999) identify not only interpretive differences between interrogatives and exclamatives in the Italian (dialect) data they consider, but also syntactic differences (e.g. absence vs. presence of SAI in the root domain), which they claim fall out from a different structural position of the *wh*-phrase (and finite verb) in the two cases. A similar position is espoused by Benincà & Poletto (2004: 52) whose work builds on the assumption that 'there is a one-to-one relation between position and function, in our case between each pragmatic interpretation and a syntactic position in CP'. Although they explore this hypothesis in relation to topics and foci specifically, they suggest that it is 'possibly valid even beyond the immediate scope of this article' (Benincà & Poletto (2004: 52)). This raises the possibility of identifying equally fine-grained distinctions between pragmatic interpretations for clause-types and encoding these in terms of a range of contentful projections in the clausal left periphery. In re-introducing a direct connection between the syntactic structure of a clause and its illocutionary force, such an approach seems to herald a return to the literal force hypothesis, which was discussed above in section 2.4.1. Note that it nevertheless manages to avoid the issue of indirect speech acts associated with this approach in a quite different way to accounts such as that of Huddleston (1994). The inventory of clause-types is expanded, so that even small nuances in interpretation reflect a difference in the underlying syntactic structure. Thus the issue of an indirect speech act never arises, because there is only ever

⁴⁹ Aboh & Pfau (2010: 116) claim that InterrogativeP is the locus of question interpretation in *wh*-questions (as well as in yes/no questions). However, in their account there is no obligation for the *wh*-expression to occupy spec-IntP. They argue on the basis of data from a range of signed and spoken languages that *wh*-movement should be dissociated from question interpretation. In their view, *wh*-movement is not motivated by, or involved in, the typing of a clause as interrogative. This function is rather fulfilled by an interrogative particle in the specifier or head position of IntP.

one highly specific illocutionary force associated with any given syntactic structure. The implications of such a position are considered in the following section.

2.5.4 The proliferation of clause-types: where to draw the line?

Whilst in certain cartographic accounts the connection drawn between syntactic distinctions and interpretive differences is particularly tight, not all cartographers assume such an extreme position as Benincà & Poletto (2004). The accounts of Munaro & Obenauer (1999) and Benincà & Poletto (2004), as well as other work in this spirit differs from Rizzi's (1997) original cartographic account of the CP not only in positing different contentful projections for different clause-types, but also in taking a more fine-grained approach to the identification of different clause-types. A considerable body of work has shown that when we zoom in to a sufficient degree of syntactic detail, and when we are sensitive to subtleties in interpretation, we are frequently led to differentiate between structures within what is traditionally construed as a single clause-type. For instance, numerous sub-types have been identified within the category of 'interrogative', particularly in the realm of 'special questions' (Obenauer 1994; Garzonio 2004) and 'pseudo-interrogatives' (Munaro & Obenauer 1999), which differ in both syntactic behaviour and interpretation from 'standard questions'. Even the latter do not form a homogenous class: it has been noted that standard *why*-interrogatives show different syntactic behaviour to interrogatives introduced by *who*, *what*, *where*, *when* or *how*, for instance (see Rizzi (2001); Shlonsky & Soare (2011)). Those categories which are typically referred to in discussions of clause-typing - interrogative, imperative, declarative, exclamative and so on - prove too coarse to capture the subtle distinctions in syntactic behaviour and interpretation observed by cartographers. What we see then, in effect, is a proliferation of clause-types, even if this is not explicitly presented as such.⁵⁰

These fine-grained clause-types are identified on the basis of syntactic and semantic distinctions which, under the theoretical assumptions of cartography, go hand in hand. However, one thorny issue, rarely explicitly discussed, is where exactly the line should be drawn. What constitutes a sufficient degree of syntactic or interpretive difference such that we can confidently say that we are dealing with two distinct kinds of (complement) clause? Which (kind of) syntactic distinctions result in a difference in interpretation, and which do

⁵⁰ See for instance Munaro (2011). Whilst the article is entitled 'Toward a hierarchy of clause types', no definition of 'clause type' is given, nor explanation of what criteria are deemed necessary and sufficient to delimit a distinct clause-type. It is rather implicit that the clauses he considers qualify as different types in the hierarchy they outline, on the basis of their syntactic behaviour and interpretation.

not? Referring back to the discussion of Cinque and Rizzi (2010: 52) in section 2.5.3.3 above, how are we to interpret the aim expressed ‘to “syntacticize” *as much as possible* the interpretive domains [my emphasis - RCN]’? Recall from the discussion in section 2.4 above that certain pragmatic interpretations of a particular clause-type seemed to be more dependent on the context of the utterance than did others. Given the infinite range of contexts imaginable, the potential for minute differences in interpretation seems endless.⁵¹ How do we decide which of these interpretive differences should be syntactically encoded, and which not? If we need independent syntactic support for postulating that an interpretative distinction is to be attributed to the underlying syntactic structure of the clause, and not simply to lexical semantics or pragmatic inference, how many accompanying syntactic differences are required to draw this conclusion?

The answers are less than clear, even for apparently canonical cases of clause-types. Sometimes clause-types are taken to involve a clustering of syntactic properties: a root interrogative involves both *wh*-movement and subject-auxiliary inversion (SAI), for instance. However, in the embedded domain, there is (generally) no SAI, and the (surface) distinction to other embedded *wh*-clauses is less marked, as was already illustrated above in (22) and (23).⁵² Furthermore, the existence of cases such as those in (31), which intuitively seem to qualify as interrogatives and questions despite lacking SAI, suggests that even in the root domain, such a property cannot be necessary for a clause to qualify as an interrogative, or to be interpreted as a question.⁵³ On the other hand, the literature on *how come* clauses (cf. Collins 1991, Fitzpatrick 2005, Shlonsky & Soare 2011) has also identified ways in which they show distinct properties from other *wh*-interrogatives, besides the absence of SAI - they are taken to be factive and they do not allow pair-list readings with subject quantifiers, for instance. Thus there is also motivation on the basis of their interpretation and their syntactic properties for considering them a ‘type’ of their own.⁵⁴

⁵¹ A point made by Levinson (1983: 280), who summarises Wittgenstein’s (1958: 10-11) denial ‘that there is any small set of functions or speech acts that language may perform; rather there are as many such acts as there are roles in the indefinite variety of language-games (or speech events) that humans can invent’.

⁵² One issue which I do not explore here is the nature of the correspondence between embedded and matrix clauses. Some types of FCC seem to show an obvious resemblance to corresponding matrix clauses (e.g. true interrogative complements, embedded exclamatives (see discussion of these FCCs in Chapter 3), whilst others do not seem to have an obvious matrix equivalent (e.g. the complementiser-like *how* clauses discussed in Chapter 4).

⁵³ Nor is the presence of SAI sufficient evidence to conclude that we are dealing with an interrogative. Albeit less common than the non-inverted variants, we find matrix exclamatives which also show SAI, as shown in (i).

(i) How beautiful is his wife! [Elliott (1974: 233) ex. (21)]

⁵⁴ In cartographic work of the type represented by Munaro & Obenauer (1999), Benincà & Poletto (2004), discussed above in 2.5.3.3, such interpretive and syntactic differences would presumably be an indication that the underlying syntactic structure of *how come* interrogatives differs from that of standard interrogatives. See Shlonsky & Soare (2011: 665-666) on *how come* clauses for argumentation and implementation to this effect.

- (31) a. How come he left?
b. How come she can't make it?

The advantage of approaches which posit a very fine-grained approach to distinguishing clause-types is that to some extent it lessens the confusion as to what constitutes a sufficient degree of syntactic or interpretive difference such that we are justified in positing a new clause-type, as even subtle distinctions are taken into consideration. Yet the issue does not disappear altogether. Evidently, not every syntactic distinction between clauses is indicative of a different clause-type. Similarly, we must still leave scope for lexical semantics and pragmatics to play a role in determining interpretation. However, in all other approaches, the decision as to where to draw the line seems even more arbitrary. This becomes especially clear when we see at the end of Chapter 3 that in the domain of finite complement clauses, 'resolutive' interrogative complement clauses have almost as many syntactic properties in common with embedded exclamatives as they do with 'true interrogative' complements. Yet resolutives and exclamatives are not taken to constitute a single clause-type in the way that 'resolutive' and 'true interrogative' complements have been.

The issue is rather whether such a profusion of clause-types does not obscure certain generalisations.⁵⁵ It seems intuitively clear that a *why*-interrogative, even if interpretively and syntactically distinct from a *what*-interrogative in certain key regards, nevertheless holds much in common with it. What will become clear from my discussion of the typology of finite clausal complements in Chapter 3 is that by focussing on a wide-range of syntactic and semantic properties, we see that clause-types are not characterised by a single defining property, but by a unique combination of properties which distinguishes them to various degrees from all other clause-types. When we look from close-up, we can identify many distinct types (e.g. 'resolutive', 'true interrogative', 'special question') all involving a unique combination of properties. Zooming out, what is more apparent are the commonalities, giving the impression of broader super-types (e.g. 'embedded interrogatives').⁵⁶ It is a choice the linguist faces whether we apply the label of independent

⁵⁵ It also alters the picture when it comes to characterising the distribution of FCCs, and accounting for their selection, as will be discussed in Chapters 5 and 6.

⁵⁶ In cartographic representations, the functional projections of clause-types which show similarities in syntactic behaviour and interpretation tend to cluster together. This has led to the proposal that even within the CP zone, different layers - or 'fields' in the terms of Benincà & Poletto (2001: 53), who define them as 'sets of contiguous and semantically related projections' - can be identified. Each field then has its own 'internal "cartography"' (Benincà & Poletto (2001: 53). Whilst Benincà & Poletto's (2001) proposal is worked out for the 'topic' and 'focus' zones alone, Munaro & Obenauer (1999: 216 f.n.19) make reference to 'the layer of CP connected to interrogativity', without elaborating on a particular proposal for this. To my knowledge, there is to date no account which implements in detail the idea of CP-internal layers for clause-types. This approach seems promising when it comes to capturing the subtle interpretive and syntactic distinctions between clause-types which are often

clause-type to the former, or reserve it only for the latter, with variation in syntactic and interpretive behaviour viewed in terms of clauses being more or less canonical members of a clause-type. Even under such an approach, however, at some point a decision has to be reached as to where the division lies between being a non-canonical member of one clause-type, and qualifying as an independent kind of clause-type. The important point to keep in mind, however, is that this is to a large extent an issue of classification, rather than of empirical data.

2.6 Distinguishing clause-types: conclusions

In this chapter, I have dealt with the issue of how clause-types are defined, and the related issue of how they are to be distinguished. In the first part of this chapter, we saw that distinctions can be drawn between clauses at three levels: the syntactic, the semantic and the pragmatic, with debate as to whether the latter of these applies equally in the embedded domain as in the root domain. The second part of this chapter focussed on the relation between the ‘types’ of clauses identified at these various levels. The syntax-pragmatics mapping was considered first, and the conclusion reached that the connection between these two levels is mediated by the semantics. Given both this, and the uncertainty as to whether illocutionary force can be embedded, the final part of this chapter was dedicated to the question of the relation between the syntactic structure underlying a clause and its semantic interpretation. A range of approaches have been taken to this issue, and these were sketched in the discussion above. These were seen to differ in many details of implementation, in particular regarding the level of detail taken into account both in the syntactic structure and in the interpretations identified, and in how direct the correspondence between the two is assumed to be.

As the main focus of this work is not on the syntactic encoding of clausal force, but rather on the distribution of finite clausal complements in English, I defer taking a stance on the exact nature of the relation between the syntactic structure of a clause and its semantic interpretation until later in this work (Chapter 6). The crucial point to take forward to the presentation of empirical data on finite clausal complements in English in the following two chapters is that such a connection exists. The members I identify in the typology of the

overlooked or lumped together in other accounts, without losing sight of the commonalities between these clause-types. There are many unanswered questions concerning CP layers however. Are the zones more than simply labels imposed by linguists? What do projections within the same zone have in common? Are there particular processes characteristic of particular zones, or patterns of behaviour characteristic of the edge of a zone?

FCCs of English are defined on the basis of both syntactic and interpretive properties. On the basis of the richer typology of FCCs that I posit, new distributional regularities emerge, which are presented in Chapter 5. I return to the issue of clause-type in Chapter 6, when in offering an account for these patterns I argue against proposals to the effect that FCCs are selected on the basis of clause-type.

Chapter 3 A typology of finite clausal complements in English

3.1 Introduction and overview

With the theoretical discussion of clause-types and clause-typing in Chapter 2 as backdrop, in this chapter I set out the typology of finite clausal complements (FCCs) of English that I assume throughout the rest of this work. Although the content of the current chapter is essentially descriptive, the distinctions drawn between clause-types are informed by the theoretical assumptions concerning the architecture of the grammar and the compositional nature of semantic interpretation of syntactic structure which were set out in the previous chapter. Thus the types of finite complement clause which I include in my typology are distinguished in terms of both their syntactic properties and their interpretation. As the discussion in sections 2.5.2-2.5.4 made clear, these broad theoretical assumptions are compatible with a number of specific implementations. I postpone discussion of the syntactic encoding of clause-types until Chapters 6 and 7.

Modest though the goal of documenting empirical distinctions in syntactic behaviour and semantic interpretation between clauses may seem, to my knowledge there exists no account which gives a comprehensive overview of the behaviour of as broad a range of embedded clause-types as that given here (although see Warner (1982) for a historical study which makes reference to embedded interrogatives, embedded exclamatives, CHCs and *that*-clauses, as well as relatives, and Leonarduzzi (2000) for a descriptive work which considers embedded interrogatives, exclamatives and free relatives). Whilst many individual types of finite clause have already been documented and described, sometimes in contrast to another type, much work still focusses on the properties of, and contrast between, core broad categories such as ‘declarative’ and ‘interrogative’. Many of the most novel and insightful observations on these and lesser-studied clause-types, such as exclamatives, are made in unpublished and/or little-known works. In addition, as noted in Chapter 2 section 2.2, there is a far greater body of work which deals with clause-type distinctions for the root domain

than there is for the embedded domain. Part of my task here is to evaluate the extent to which diagnostics offered for distinguishing different types of clauses in the root domain are applicable to the embedded domain. In establishing a typology of finite clausal complements for English, I make explicit the criteria used to distinguish FCCs to ensure internal coherence, determining how many different kinds of FCCs can be identified, and ascertaining what their crucial distinguishing features are.

Not only is such an inventory of English finite clausal complement in and of itself of value, it will also provide us with the necessary context to be able to demonstrate that the previously little-discussed complementiser-*how* clauses (CHCs), the properties of which are explored in depth in the following chapter, do indeed constitute a type of finite complement clause in English distinct from those to which they show a surface (resolutive, exclamatives) or interpretive (declaratives) resemblance. Furthermore, it is a crucial step towards the ultimate goal of this work: identifying patterns in the distribution of FCCs, and rethinking the factors which are relevant in governing their distribution.

In this chapter I restrict my attention to those clause-types traditionally identified and discussed in the literature. In section 3.2 I introduce the six members of the inventory drawn up here. After an initial overview of the clause-types under consideration - as well as those not taken into account in the current study - the discussion is structured around distinguishing types of complement (clause) which have frequently been confused or conflated in the literature: true interrogatives and resolutes in 3.2.1, factive and non-factive *that*-clauses in 3.2.2, exclamatives and resolutes in 3.2.3, resolutes and free relatives in 3.2.4, and exclamatives and free relatives in 3.2.5. Section 3.3 provides an overview of the resultant typology of the FCCs of English, and 3.4 concludes.

The under-studied CHCs are not added to the typology of FCCs until the following chapter, where I review their properties documented to date, and provide novel observations on their syntax and interpretation. In Chapter 5, I present the distribution of the five types of FCC discussed in the current chapter, together with that of the CHCs introduced in Chapter 4. I show that the shortcomings of many previous approaches to the distribution of English FCCs relate to the fact that the distinctions made between types of FCC are not subtle enough, with the result that the correct empirical generalisations are missed. Specifically, I argue that there is a strong case against the widely-held view that distribution is determined by the clause-type of FCCs. We rather need to look to the properties internal to FCCs. This only becomes apparent in the light of the more nuanced clause-type distinctions made in the inventory which is developed in this chapter and the next.

3.2 The members of the typology

The six types of FCC which make up my typology are illustrated below in (1)-(6). Whilst I make use of terminology (‘interrogative’, ‘exclamative’...) which is traditionally associated with (syntactically defined) clause-types to label these (see discussion in Chapter 2, sections 2.2.1 and 2.2.2), I take these clauses to differ in both syntax and interpretation, in line with the theoretical background laid out in Chapter 2. In the course of this chapter I provide detailed discussion of the clause-types in (1)-(5), motivating each as a distinct member of the typology on the basis of its distinctive combination of syntactic and interpretive properties. I pay particular attention to those kinds of finite complement clause which have often been confused in the literature. This includes cases where two types of what I will argue to be distinct FCCs have been conflated, as is the case for interrogatives and resolutes (cf. (1) and (2), and discussion in section 3.2.1), and factive and non-factive *that*-clauses, as in (3) and (4) (see section 3.2.2). However, I also deal with particular examples for which confusion arises as to which of two distinct types of complement clause they belong to. This is the case for certain resolutes which have mistakenly been classified as exclamatives. These are discussed in section 3.2.3. The source of such confusion is in part due to the fact that there is uncertainty concerning the properties of embedded exclamative clauses. In sections 3.2.3.1 and 3.2.3.1 I focus on the properties of this otherwise understudied clause-type. CHCs such as (6) have received even less attention to date, and these I consider in detail in Chapter 4.

- | | |
|--|-----------------------------------|
| (1) I asked [where Mary lived]. | [interrogative] |
| (2) I forgot [where Mary lived]. | [resolutive] |
| (3) I thought [that Mary had wanted to go to Spain]. | [non-factive <i>that</i> -clause] |
| (4) I forgot [that Mary had wanted to go to Spain]. | [factive <i>that</i> -clause] |
| (5) I forgot [what a lot of time Mary had spent in Spain]. | [exclamative] |
| (6) I forgot [how Mary had wanted to go to Spain]. | [CHC] |

It is not my aim to exhaustively document every kind of FCC in English which could be distinguished. There are certainly finer-grained distinctions which have and could be made, but in order to keep the picture manageable, I choose to look from ‘medium range’, making finer-grained distinctions than for instance Grimshaw (1979), but not aspiring to the level of detail offered by some cartographic accounts (see discussion in Chapter 2, section 2.5.4). There are also certain kinds of (clausal) complement which I exclude from consideration in the present work. The first are *whether*-clauses (7). As Huddleston (1993a, 1994) notes,

these show differences to *wh*-variable questions, including in terms of their distribution. For instance, *realise* permits *wh*-variable questions (8a) but not *whether*-clauses (8b) as complement, whereas *doubt* conversely permits *whether*-clause complements (9b) but not *wh*-variable questions (9a). The distinctions are in fact even more subtle, as Huddleston (1994) in fact distinguishes two types of *whether*-clause, ‘polar questions’ and ‘alternative questions’ to use his terminology, which themselves diverge in distribution in certain contexts - whilst both are excluded under *realise*, the *whether*-clause complements which *doubt* permits are only of the ‘polar question’ type (cf. 9b vs. 9c).¹

(7) a. I asked [whether John had arrived].

b. She didn’t tell me [whether John had arrived].

(8) a. She realized [why he was angry].

[*wh*-variable question]

b. * She realized [whether he was angry (or not)]. [* polar (alternative) question]

[Huddleston (1994: 418), ex. (16a,b)]

(9) a. * I doubt [where she is].

[* *wh*-variable question]

b. I doubt [whether you are ready].

[polar question]

c. * I doubt [whether it is a boy or a girl].

[* alternative question]

[Huddleston (1994: 418), ex. (11a-c)]

Ultimately we would like such facts to be incorporated into an account along the lines given here. However, given the subtle and poorly understood distinctions within the class of *whether*-clauses, and the debate that surrounds them (cf. Adger & Quer (2001); Sæbø (2007); Egré (2008)), we are not yet in a position to consider the distribution of *whether*-clauses, and a detailed study of their properties would take us too far afield here. They nevertheless receive some attention in Chapter 5, section 5.3.2.4.4b, and in Chapter 6 I show that the current proposal at least has the scope to capture the differences between *whether*-clauses and other interrogative complement clauses.

In the domain of *that*-clauses, I limit my discussion to clauses such as (10a), which are in the indicative mood, leaving aside subjunctive clauses such as (11b). Nor do I discuss the behaviour or distribution of bare declarative complement clauses. In many contexts, such as those illustrated in (12), bare declarative and *that*-clause declarative complements appear to be interchangeable (although see Bolinger (1972), Thompson & Mulac (1991) on factors

¹ *If* can also introduce both ‘polar questions’ and ‘alternative questions’, as (i) illustrates. It is not the case that *if* and *whether* are freely interchangeable, however: (ii) is less grammatical than (7b), in my judgement. The properties of both *if* and *whether* clauses, and their similarities and differences, require further investigation.

(i) I asked [if John had arrived (or not)].

(ii) ?(?) She didn’t tell me [if John had arrived].

affecting the choice of one over the other). However, as Schulz (2003: 12) observes, bare declarative clauses are excluded under certain factive (13) and perception (14) verbs, even though other verbs belonging to the same categories (cf. (15) and (16) respectively) do permit these. Again, interesting though these patterns are, they fall beyond the scope of the present investigation.

- | | |
|---|-----------------|
| (10) a. I heard [that the case <u>is/was</u> adjourned until Monday] | [indicative] |
| b. * I heard [that the case <u>be</u> adjourned until Monday]. | [* subjunctive] |
| (11) a. * I requested [that the case <u>is/was</u> adjourned until Monday]. | [*indicative] |
| b. I requested [that the case <u>be</u> adjourned until Monday]. | [subjunctive] |
| (12) a. I think [(that) he's going to be late]. | |
| b. They know [(that) the meeting starts at 10]. | |
| (13) a. Mary pointed out [*(that) she bought a mobile phone]. | |
| b. Mary recalled [*(that) she bought a mobile phone]. | |
| (14) a. John smelled [*(that) the food was burned]. | |
| b. Mary tasted [*(that) the food was burned]. | |
| (15) a. Mary admitted [(that) she bought a mobile phone]. | |
| b. Mary remembered [(that) she bought a mobile phone]. | |
| (16) a. Mary saw [(that) the food was burned]. | |
| b. Mary heard [(that) the child was crying]. | |

Finally, free relatives (FRs) such as (17) can show a surface resemblance to some of the FCCs discussed here. They do not qualify as a member of the typology presented here, however, as they are widely taken to be nominal rather than clausal complements (see e.g. Groos & van Riemsdijk (1981); Huddleston & Pullum (2002); *pace* Rooryck (1994)). Free relatives are thus not treated in their own right, although they are discussed in sections 3.2.4 and 3.2.5 below in relation to the confusion which has arisen in distinguishing resolutives and exclamatives respectively from them. Nor are headed relative clauses considered.

- | | |
|---------------------------------------|----------------------------|
| (17) a. I ate [what he cooked]. | [unambiguous FR] |
| b. I discovered [what he discovered]. | [ambiguous resoluteive/FR] |

Just as I do not claim to offer an exhaustive inventory of the FCCs of English, neither is it my intention to document or explain every last property of each type of finite clausal complement that I do identify, nor to give a fully comprehensive overview of the literature

dealing with the properties of each of these kinds of FCC. My ultimate goal is a rethinking of the factors governing the distribution of FCCs in English, and an understanding of their syntactic and interpretive properties concerns me in so far as it contributes to this. I therefore restrict my attention to the key arguments and controversies in the literature concerning the distinguishing of the five FCCs discussed in this chapter. My aim is to show that there is good justification for positing each of these five types as a distinct clause-type. Again, syntactic and interpretive properties of the clauses are of relevance in so far as they contribute towards this goal. The focus will predominantly be on English, although supporting data from other languages will be provided where appropriate, i.e. in instances where other languages make an explicit distinction between types of FCC which in English on the surface look the same.

3.2.1 True interrogative vs. resolute complements

In this section I turn to the distinction between true embedded interrogatives and resolute complement clauses, two categories which have often been subsumed under the single category ‘embedded interrogative’. The failure to make a distinction between true interrogative and resolute complements (and similarly between factive and non-factive *that*-clauses, discussed below in section 3.2.2) stems from the fact that the ‘interrogative’ complements to predicates such as *ask* (cf. 18a) can be identical in surface form to the ‘interrogative’ complements to *forget* (cf. 18b).² This has led many authors to tacitly assume - and certain others (e.g. Lahiri 2002) to explicitly argue - that we are in fact dealing with the same syntactic and/or semantic object in both cases. Indeed, at first glance, what we have in (18) is ‘the same’ clause - and similar pairs can be created involving a range of other *wh*-expressions: *who*, *what*, *how*, *why*, *which*, for instance. However, it has long been observed (cf. Grimshaw 1979) that certain finite clausal complements with the same surface string can nevertheless be associated with different interpretations. This is the case for the string-identical exclamative and interrogative complement clauses in examples such as (19), provided by Grimshaw (1979: 282) and repeated from the discussion of examples (22a) and (23a) in Chapter 2, section 2.5.2. In such cases, the FCCs also show syntactic distinctions,

² *Ask* here represents a class of predicates, whose other members include *wonder* and *inquire*, and whose interrogative complements show the same interpretive and syntactic behaviour. *Forget* is similarly representative of a class of predicates, distinct to the *ask*-class, including e.g. *realise* and *find out*, whose interrogative complements also pattern alike. In Chapter 5 I give a fine-grained characterisation of the various classes of FCC-selecting matrix predicates, precisely on the basis of the behaviour of their complements. In Chapter 6 I consider the role played by the matrix predicate and by the complement clause in contributing to the differences these two types of interrogative complement display.

albeit not necessarily in the surface string.³ I will argue that the same holds for the complements in (18a) and (18b). Despite involving the same surface form, it has already been noted in the literature that they differ in both interpretation and syntactic behaviour. After assessing the evidence put forward, I conclude that there is indeed sufficient motivation to consider them as distinct ‘types’ in my typology, and thus refer to them by the terms ‘true interrogative’ and ‘resolutive’ respectively. I use ‘interrogative’ as a cover term for ‘true interrogative’ and ‘resolutive’ complements, for despite their differences, they nevertheless do also have much in common.

- | | |
|---|-----------------|
| (18) a. I asked [where Mary lived]. | [interrogative] |
| b. I forgot [where Mary lived]. | [resolutive] |

- | | |
|--|-----------------|
| (19) a. It's amazing [how tall John is]. | [exclamative] |
| b. Fred will ask [how tall John is]. | [interrogative] |

3.2.1.1 Terminology for interrogative complement clauses

Before reviewing the key arguments for differentiating the finite complement clause in (18a) from that in (18b), I briefly discuss the terminology used to label these FCCs. The confusion surrounding the distinction between the two seems to have been exacerbated by a lack of consensus as to the labels applied to them. As McCloskey (2006: 109) observes, ‘[n]o single terminological system has so far established itself in this discussion’. In order to ensure internal coherence in my account, I reserve the term ‘true interrogative’ for FCCs such as (18a), referring to FCCs such as (18b) as ‘resolutives’, whilst on occasion using ‘interrogative’ as a cover term for both. In the context of this work, ‘(true) interrogative’

³ Under predicates which accept both exclamative and resolutive complement clauses, the same string can then be ambiguous between the two readings, as in example (i), where the two paraphrases are given in (a) and (b).

- | | |
|---|-----------------------------------|
| (i) Fred knows [how tall John is]. | [Grimshaw (1979: 282), ex. (11a)] |
| a. ≈ Fred knows John’s height. | [resolutive] |
| b. ≈ Fred knows that John is particularly tall. | [exclamative] |

There is never a similar context where an FCC is ambiguous between an interrogative and a resolutive interpretation, i.e. there is no matrix predicate which embeds both interrogatives and resolutives (see also the discussion in Chapter 5). For this reason, some of those authors who have acknowledged a distinction between interrogative and resolutive complements (cf. Ginzburg & Sag 2000, Lahiri 2002) attribute this to the matrix predicate, rather than making the complement clause itself the locus of the distinction. In this chapter, my aim is simply to document the interpretive and syntactic differences between interrogatives and resolutives. The existence of such distinguishing properties constitutes sufficient grounds for positing a type of FCC in my typology, independent of the analysis which will ultimately be given. In Chapter 6, I deal with the issue of whether such differences should be explained on the basis of (structural) differences between interrogative and resolutive complement clauses, or whether they should rather attributed to the matrix predicate, or whether both of these factors play a part.

should be taken to mean ‘(true) embedded interrogative complement clause’, with the term ‘root interrogative’ used when the discussion does not concern the embedded domain.

As McCloskey (2006: 113) notes when he makes use of the label ‘resolutive’, the term originates in the work of Ginzburg and Sag (2000), although Ginzburg (1995b) already discusses the property of ‘resolvedness’ in relation to embedded interrogatives. This relates to the intuitive idea that resolutive seem to be closer to the answer to the questions the equivalent root interrogatives pose than to the root interrogatives themselves. McCloskey (2006: 109), following Ginzburg and Sag (2000), distinguishes between ‘Question Predicates’, such as *ask*, and ‘Resolutive Predicates’, such as *find out*. As McCloskey (2006: 113) notes, Ginzburg and Sag (2000: 65 f.n.10) use the term resolutive only to characterise a class of predicates - those which carry ‘a presupposition that the embedded question is resolved’, for unlike McCloskey, they consider all interrogative complement clauses to originate as members of the same semantic type ‘question’ (see section 3.2.1.2 below). Note furthermore that the term ‘resolutive’ is used by the authors cited in opposition to the semantic category ‘question’. Thus my use of ‘resolutive’ to refer to a kind of FCC, defined on the basis of both syntactic properties and interpretation, is an innovation in comparison to the existing literature.

Ohlander’s (1986) terminology is in the same spirit, referring to the two types in (18) as ‘open’ and ‘closed’ interrogatives respectively.⁴ I avoid this usage because of potential confusion stemming from the fact that in other accounts (e.g. Huddleston 1993a), the terms ‘open interrogative’ and ‘closed interrogative’ are rather used to refer to what I term *wh*-interrogatives (*When/why did he leave?*) and polar interrogatives (*Did he leave?*) respectively. In her discussion of the same distinction in Spanish, Suñer (1991, 1993) makes use of the terms ‘true indirect question’ and ‘semi-question’, echoed in Matos & Brito’s (2012a,b) recent use of the terms ‘proper indirect question’ and ‘improper indirect question’ in their consideration of Portuguese. I avoid terms which make reference to ‘question’ to avoid the suggestion that what is being dealt with here is only the semantic domain. Table 1 summarises the different terminology which has been applied to the two types of embedded interrogative.

⁴ Ohlander (1986) in fact makes a three-way distinction between answer-oriented predicates such as *know*, active question-oriented predicates such as *want to know*, and passive question-oriented predicates such as *not know*, identifying differences in the behaviour of the interrogative complements in each case. Whilst these are worthy of further investigation in future research, pending a full investigation of the effect of modification of the matrix predicate by modals and negation (see Chapter 4, section 4.4.1.3 for some discussion), I restrict myself to the two-way distinction between true interrogatives and resolutive which has received the most support in the literature.

Table 1 - Terminology used to refer to the two types of embedded interrogative complement

my terminology		(true) interrogative	resolutive
alternative terminology	Ohlander (1986)	open interrogative	closed interrogative
	Suñer (1991, 1993)	true indirect question	semi-question
	Matos & Brito (2012a,b)	proper indirect question	improper indirect question

Note that despite the range of terminology, almost all existing accounts reflect the view that the finite complement clauses to *ask* are somehow more typically interrogative-like, and have more in common with root interrogatives than do the complements to *find out*. As will become clear from the observations made in section 3.2.1.3, ‘true interrogative’ complements are closer to root interrogatives than resolitives are in more than just name, making the choice of labels felicitous in this respect too.

3.2.1.2 Semantic distinctions between true interrogative and resolutive complements

The fact that two types of *wh*-complement clause should be identified has long been recognised in the semantics literature, at least since Groenendijk & Stokhof (1984a,b), who refer to what I term true interrogatives as ‘question intensions’ (‘functions from possible worlds to propositions, which divide the set of possible worlds into partitions defining the space of possible answers to a given question’) and to my resolitives as ‘question extensions’, that is to say ‘they are propositions which express true and complete answers to questions’, as explained by McCloskey (2006: 109). McCloskey (2006: 109) substantiates his claim that ‘a large body of work argues that the complement of *wonder* is semantically very different from the complement of *discover*’, citing in addition to Groenendijk and Stokhof (1984a,b), the following work: Munsat (1986), Groenendijk and Stokhof (1989, 1997), Berman (1991), Lahiri (1991, 2000, 2002), Ginzburg (1992), Suñer (1993), Szabolcsi (1997), Krifka (1999), Ginzburg & Sag (2000), Krifka (2001). Despite the broad range of implementations, McCloskey (2006) identifies a common thread to this work. The complements to predicates such as *ask* are taken to be of the semantic type of a

root question. The complements to predicates such as *forget*, on the other hand ‘embed complements more akin to propositions’ (McCloskey 2006: 109).⁵

For almost as long as such a distinction has been proposed, it has been disputed, however, by proponents of what Ginzburg & Sag (2000) term the ‘Interrogative Uniformity Theory’: ‘the thesis that all syntactic constituents corresponding to the pre-theoretical category ‘interrogative’ have a uniform denotational type’ (McCloskey 2006: 109); see also the discussion in Ginzburg & Sag (2000: 65)). As McCloskey (2006: 110) observes, ‘[t]he debate on the Interrogative Uniformity Thesis has largely proceeded on the assumption that there is no syntactic difference between the two types of interrogative complement. The inability to detect syntactic differences between the two complement-types has, in fact, been the source of some scepticism about whether the type-differentiation is real (see, for instance, Lahiri (2000) and especially Lahiri (2002: Chap. 6))’. McCloskey (2006) is just one of the many authors to be discussed in the following section, section 3.2.1.3, who provides syntactic evidence for such a distinction.

How can we reconcile the fact that Lahiri (2002) is listed both as a proponent of the Interrogative Uniformity Thesis, and as someone who recognises a semantic distinction between interrogative and resolutive complement clauses? The answer is that for Lahiri, the distinction is not inherent to the two kinds of clause, which he takes to be uniformly of the (semantic) type ‘question’. The distinction rather comes from the selecting predicate. Predicates such as *ask* are compatible with ‘question’ complements, predicates such as *forget* are not. The latter do accept complements of the semantic type ‘proposition’, however. In order to be compatible with such matrix predicates, an interrogative complement must first undergo a type-shifting operation, which takes a semantic object of type ‘question’ and returns an object of type ‘proposition’. Thus, whilst the interrogative complements to *forget* end up being of a different semantic type to the interrogative complements of *ask*, this is purely due to the influence of the matrix predicate - there is no class of complements ‘resolutives’ distinct to interrogatives. The ‘input’ when combining an interrogative complement is the same both with *ask* and with *forget*, although the ‘output’ differs. Ginzburg & Sag (2000: 74) make a similar proposal (discussed further in Chapter 5, section 5.2.2.1), although in their account *forget* is a fact-selecting predicate, and in such a context ‘questions’ are coerced into ‘facts’ (a ‘model-theoretic construct which constitutes an answer to the question expressed by the interrogative clause’ (McCloskey 2006: 110)),

⁵ Inkeeping with this is Matos & Brito (2012a: 2) more recent claim that resolutives (‘improper indirect interrogatives’) and true interrogatives (‘proper indirect interrogatives’) ‘differ in their propositional status: proper indirect questions are not propositions, since they cannot be true or false...In contrast, improper indirect interrogatives are propositions, since they have an assigned truth value’.

rather than propositions.⁶ Resolutives hold their status as ‘facts’ in common with other factive complements: factive *that*-clauses and exclamatives. Whilst resolutives are not typically labelled as factive, the reservation of this term for the presuppositions associated with *that*-clause complements alone seems mostly a matter of convention.⁷ Broekhuis & Nye (2013) demonstrate the contrast between true interrogatives and resolutives with regard to presupposition with examples such as (20) and (21), and argue that there is justification for considering the behaviour of resolutives such as (21) to be ‘factive’.⁸

- | | |
|--------------------------------------|-----------------------|
| (20) a. John asked who was leaving. | ⇒ someone was leaving |
| b. John didn’t ask who was leaving. | ⇒ someone was leaving |
| | |
| (21) a. John knew who was leaving. | ⇒ someone was leaving |
| b. John didn’t know who was leaving. | ⇒ someone was leaving |

Just as McCloskey (2006) notes to be typical of proponents of the Interrogative Uniformity Thesis, Lahiri (2002) sets out to show that, despite observations in the literature to the contrary, there are no syntactic differences between true interrogatives and resolutives. The existence of these is unexpected on his approach, which assigns the same semantic type to all interrogative complements. I deem his attempt at doing so unsuccessful on two counts, however. Firstly, he considers only a very limited set of data. Even if it were the case that some of the putative distinctions between true interrogative and resolute complements could be accounted for without deeming them to be of different types, when we take into account the full range of distinctions between interrogatives and resolutives to be discussed in section 3.2.1.3, which are found in and across various languages and language varieties, it seems unlikely that these can all be explained away. Furthermore, there is good evidence that true interrogative and resolute complements differ not only syntactically but also interpretively, making Lahiri’s position untenable. Additionally though, even for those putative syntactic distinctions which Lahiri does discuss, his counter-arguments do not always go through (see Turnbull-Sailor (2007: 22-24) for discussion of precisely this point).

⁶ Whilst Ginzburg & Sag (2000) take all interrogative complements to be of the type ‘question’, it is not the case that all finite complement clauses which show a surface resemblance are automatically taken to be of the same type. They do consider factive and non-factive *that*-clauses (discussed in section 3.2.2) to be of distinct types – facts and propositions respectively. See Ginzburg & Sag (2000: 74) for motivation of this distinction.

⁷ A convention which many are reluctant to abandon. Leonarduzzi (2000: 465) claims that ‘Les questions en *Wh*-contiennent une présupposition (*Who drank my whisky?* présuppose *Somebody drank my whisky*), mais nous ne pouvons pas dire qu’une question soit «factive»’ [*Wh*-questions contain a presupposition (*Who drank my whisky?* presupposes *Somebody drank my whisky*), but we cannot say that a question is factive [my translation – RCN]].

⁸ (20) and (21) are based on Broekhuis & Nye (2013: 3) example (4). Although Broekhuis & Nye are concerned with Dutch data, the same patterns hold for English.

In conclusion then, there is considerable support for the view that two kinds of interrogative complement can be distinguished on semantic grounds, and no reason to question this finding on the grounds of lack of supporting differences, syntactic and otherwise between the two, given the range of evidence for precisely this which is presented in the next section.

3.2.1.3 Distinguishing true interrogative and resolute complements

Although syntactic distinctions have long been noted between the two types of interrogative complement (see Baker 1970), the fact that they constitute different types of embedded clause is still not widely accepted. This is perhaps in part because few authors have attempted to bring together and give an overview of such properties. Notable exceptions include Ohlander (1986) and Turnbull-Sailor (2007); both of whom document a range of properties which differentiate these two embedded clause-types. This section is in the spirit of these works, in particular that of Turnbull-Sailor (2007: 1), whose goal is ‘to syntactically disambiguate these two types of homophonous embedded clause’. Nevertheless, the conclusion I draw from these facts is quite different to that drawn by Turnbull-Sailor (2007), for whom the ‘interrogative’ complement clauses to *forget* are not in fact ‘interrogative’, or clausal, at all, but rather free relatives. In section 3.3.4, I demonstrate that this is not the case, showing that resolute complements to *forget* show syntactic differences to free relatives. Nevertheless, this does not detract from the insightful organisation of empirical distinctions between the two types of complement clause which Turnbull-Sailor (2007) provides, many of which will be mentioned below.

(A) ‘Convertability’

It is not only in terms of their interpretation that true interrogative complement clauses are taken to have a closer connection to root interrogatives than resolutives are. Ohlander (1986) provides examples such as those in (22) and (23) by means of illustration of the property that he refers to as ‘convertability’. In his terms, the embedded interrogative complement to *ask* in (22a) can be ‘converted’ into a direct interrogative such as (22b), whereas the same does not apply to the embedded interrogative complement to *tell* in (23). Without wishing to view this as a literal process of ‘conversion’ from embedded interrogative to root interrogative, the point holds that true interrogative complements alternate with the equivalent root interrogatives in a way that resolutives do not.⁹

⁹ Turnbull-Sailor (2007: 1) presents similar data (cf. (i) and (ii)), although he interprets it differently. He construes the difference in grammaticality between (ib) and (iib) as indicative of different degrees of prosodic integration of true interrogative (ia) and resolute (iia) complement clauses, only the former of which can be separated from the matrix predicate by a pause. As it seems likely that the (b) examples involve a different syntactic structure to the (a) examples, however, this seems better construed as an alternation available to true interrogatives but not to resolutives, than as a structural differences between the two.

- | | |
|---|----------------------------------|
| (22) a. John asked her who had done it. | [Ohlander (1986: 964), ex. (1)] |
| b. John asked her: 'Who did it?' | [Ohlander (1986: 968), ex. (7)] |
| (23) a. John told her who had done it. | [Ohlander (1986: 965), ex. (4)] |
| b. * John told her: 'Who did it?' | [Ohlander (1986: 968), ex. (9a)] |

The colon marks a pause, thus indicating that an embedded interrogative clause under *wonder* can be separated prosodically, whereas an embedded interrogative clause under *discover* cannot. This seems to suggest more root-like behaviour for the true interrogative complement than for the resolute, a pattern which will be replicated for several other of the properties discussed in this section.

(B) Subject-auxiliary inversion (SAI)

A key feature of root interrogatives in English - and one generally taken to be absent from their embedded equivalents - is the presence of subject-auxiliary inversion (SAI).¹⁰ Main clause declaratives, as in (24), show the 'neutral' word order 'Subject-Auxiliary', whereas the interrogative equivalents in (25) involves the 'marked' order 'Auxiliary-Subject', with *do* acting as auxiliary when no other (modal) auxiliary is present. Note that in standard (British) English, both interrogative and resolute embedded interrogatives involve the 'Subject-Auxiliary' order characteristic of declaratives (cf. (26)), rather than the 'Auxiliary-Subject' order typical of root interrogatives.

- | | |
|---|--|
| (24) a. He can swim. | |
| b. He learnt how to swim. | |
| (25) a. (Where) can he swim? | |
| b. (Where) did he learn how to swim? | |
| (26) a. She <u>asked</u> [where he can swim]/[where he learnt how to swim]. | |
| b. She <u>forgot</u> [where he can swim]/[where he learnt how to swim]. | |

-
- | | |
|---|---------------------------------------|
| (i) a. The man wondered who had broken in. | [Turnbull-Sailor (2007: 1), ex. (1a)] |
| b. The man wondered: who had broken in? | [Turnbull-Sailor (2007: 1), ex. (1b)] |
| (ii) a. The man discovered who had broken in. | [Turnbull-Sailor (2007: 1), ex. (2a)] |
| b. *The man discovered: who had broken in? | [Turnbull-Sailor (2007: 1), ex. (2b)] |

¹⁰ I do not discuss here those cases where one finds the syntactic form typical of a declarative with the interpretation of a question. See the work of Christine Gunlogson (2001, 2002) on 'declarative questions' for discussion.

This is not the case in all dialects of English, however. In the variety of Hiberno-English discussed by McCloskey (2006), true embedded interrogatives may in fact display the ‘Auxiliary-Subject’ order typical of interrogatives (cf. (27) for polar interrogatives and (28) for *wh*-variable interrogatives). Interestingly, this is not possible for resolutives (cf. (29)).¹¹

(27) a. I wondered [**would I** be offered the same plate for the whole holiday].
[McCloskey (2006: 87)]

(1a)]
b. She asked the stewards [**was any member of the committee** in the hall].
[McCloskey (2006: 87)]
(1h)]

(28) a. I wonder [what **is he** like at all].
[Filppula (1999: 168), cited as McCloskey (2006: 87)]

(2d)]
b. I asked him [from what source **could the reprisals** come].
[McCloskey (2006: 87) (2a)]

(29) a. * I found out [how **did they** get into the building].
[McCloskey (2006: 88) (3a)]
b. * I remember clearly [how many people **did they** arrest].
[McCloskey (2006: 88) (3e)]

As McCloskey observes, even speakers of those varieties of English which do not actively permit SAI in embedded interrogatives nevertheless feel a contrast in grammaticality between the cases in (27) and (28) on the one hand, and (29) on the other. And in fact, although the pattern illustrated above is perhaps best known from McCloskey’s work, it is not restricted to the variety of Hiberno-English which he characterises. As far back as Curme (1931) and Jespersen (1933) (as cited by Ohlander 1986), it was observed that ‘the inverted order of a direct question [...] is often retained in colloquial style, though person and tense may be shifted’ (Jespersen 1933: 352). Twenty years prior to the publication of McCloskey (2006), Ohlander (1986: 980 f.n. 13) additionally notes it as a characteristic feature of the variety he describes as ‘Black English’ citing Fasold & Wolfram (1970: 144). More recently, Turnbull-Sailor (2007: 12) notes the availability of SAI in the same range

¹¹ Henry (1995) observes that in some varieties of Irish English, both open and closed embedded interrogatives allow subject-auxiliary inversion. This does not weaken McCloskey’s point. The fact that some dialects (of a particular variety of English) do make the relevant distinction is of more significance than the fact that not every dialect does.

of embedded complement clauses in non-standard American English dialects. What we see in all of these varieties then is a similarity between root interrogatives and true embedded interrogatives which is not shared by resolutive.

(C) Pre-wh adjuncts associated with lower clause

McCloskey (2006) notes a further distinction between open and closed embedded interrogative complements, this time concerning the possibility for adverbial adjuncts to occur to the left of the embedded clause and yet still to be construed with this lower clause.¹² In the complement to *ask* and *wonder* this is possible (cf. (30)), in the complement to *amazing* and *establish* (predicates of the same sort as *know*, *forget*, *remember* and *find out*) this is not (cf. (31)).¹³ In McCloskey's (2006: 98) own words, 'the class of predicates which allow inversion in their complements is exactly the class of predicates which allows the initially unexpected adjunction pattern'.¹⁴

- (30) a. ? He asked me **when I got home** [if I would cook dinner].
[McCloskey (2006: 98) (57a)]
b. ? I wonder **when we get home** [what we should do].
[McCloskey (2006: 98) (57b)]
- (31) a. * It was amazing **while they were out** [who had got in to their house].
[McCloskey (2006: 98) (58a)]

¹² The relevant class of adverbs (in English), according to McCloskey (2006: 91) includes ‘a group of temporal modifiers at the sentential level such as *in general, most of the time, half the time, next Christmas, usually, every day, tomorrow, yesterday, in a few days*’, as well as adverbial clauses (McCloskey (2006: 7)).

¹³ McCloskey observes that a similar distributional restriction seems to hold for clitic left dislocation in Italian. Fronting of an argument to a position to the left of the *wh*-expression with resumption by a clitic is possible in true interrogative complements (ia) but not in resolutive (ib). As my focus here is upon English, I do not explore this distinction further, but simply observe these facts as another piece of evidence supporting the case for a syntactic distinction between the two types of interrogative complement. See Haegeman (2012) for detailed evidence for, and extensive discussion of, the parallel distribution between left peripheral adjuncts and clitic left dislocation.

- (i) a. Mi domando [**Mario** chi l' ha visto].
me I-ask Mario who him has seen
'I wonder who has seen Mario.'
b. *Ho scoperto [**Mario** chi l' ha visto].
I-have found-out Mario who him has seen
'I found out who saw Mario.'

¹⁴ At least under the analysis which McCloskey gives, these two properties are actually related. Simplifying somewhat, interrogatives involve a 'bigger' structure than resolutives. This means that in interrogatives there is a position available both for the fronting of an auxiliary as in (27) and (28), and for the attachment of adjuncts as in (30) which is not available in resolutives.

- b. * The police established **while we were out** [who had broken into our apartment]. [McCloskey (2006: 98) (58b)]

Thus we see another clear syntactic difference between the two kinds of embedded interrogative. And once again, it is embedded interrogatives which pattern alike with root interrogatives, to the exclusion of resolutes: like true interrogative complements, root interrogatives permit an adjunct preceding the *wh*-expression to be construed with the content of the clause it introduces, as in (32):

- (32) a. **When you get home**, [what do you want to do]? [McCloskey (2006: 94) (31a)]
 b. **Next Christmas** [whose parents should we go to]? [McCloskey (2006: 94) (32a)]

(D) Clause-fronting

Having considered the possibility of fronting material to proceed the embedded clause, Turnbull-Sailor (2007: 13) discusses the possibility of fronting the embedded clause itself.¹⁵ He provides the contrast between the grammatical (33b) and the ungrammatical (34b). The pattern - replicable with other predicates too (*ask* and *want to know* behaving like *wonder*, *know* and *forget* like *discover*) - therefore seems to be that whilst true interrogative complement clauses can be fronted, resolutes cannot.

- (33) a. They all wondered what could be done. [Turnbull-Sailor (2007: 13) ex. (24)]
 b. What could be done, they all wondered.
- (34) a. They all discovered what could be done.
 b.* What could be done, they all discovered.

According to Turnbull-Sailor (2007: 14), in order to be fronted an interrogative complement must involve subject-auxiliary inversion. Hence (35c) is an acceptable case of fronting of the embedded clause in (35a), but (35b) is not.¹⁶ The claim is that true interrogative complement clauses, root-like in allowing SAI (at least in some varieties of English, see section (B) above), can be fronted only when they realise this option. Thus for resolutes (cf. 36a), where SAI is not a possibility, neither is fronting of the resolute clause, as the ungrammaticality of both (36b) and (36c) indicates.

¹⁵ Turnbull-Sailor (2007: 13 f.n. 9) distinguishes clause-fronting from the quote-fronting, or quotative inversion discussed by e.g. Suñer (2000). See also Ross (1973) and Grimshaw (2011) on Slifting.

¹⁶ Note that the string in (36b) may not be ungrammatical on a free relative reading. See section 3.2.4 below for the issue of distinguishing resolutes and free relatives in certain contexts.

(E) Aggressively non-D-linked *wh*-expressions and negative polarity items

At first sight, the same range of *wh*-expressions appear to be found in both true interrogative and resolute complement clauses in English as occur in root interrogatives: *who*, *what*, *which*, *why*, *where*, *when*, *how*... , in contrast to the situation for resolutives vs. exclamatives (section 3.2.3), or resolutives vs. free relatives (section 3.2.4). This is in fact one of the reasons why I retain the term ‘interrogative’ to cover them both. Nevertheless, there are certain English *wh*-expressions which occur in root interrogatives and in true embedded interrogatives, but not in resolutives. These are what Ohlander (1986) terms ‘impatience markers’, and what are now more usually referred to as aggressively non D-linked *wh*-expressions (cf. Pesetsky (1987); Obenauer (1994: 307-316); den Dikken & Giannakidou (2002); Huang & Ochi (2004)): complex *wh*-phrases such as *who the devil*, *where the hell*, *what the fuck* (which I refer to collectively as *wh-the hell*). *wh-the hell* can introduce both root interrogatives (39) and true embedded interrogatives (40), but not resolutives such as (40). These expressions have been argued to be a kind of Negative Polarity Item (NPI) (cf. den Dikken and Giannakidou 2002), and indeed, they seem to distribute like the more familiar cases of NPIs such as *any*, which can also occur in root interrogatives (41) and true interrogative complements (42), but not in resolutives (42). See also the discussion of NPIs in section 3.2.2.2 (C) below.

(39) **Who (the hell)** rang the doorbell at midnight?

- (40) a. I wonder [**who (the hell)** rang the doorbell at midnight].
b. I know [**who (*the hell)** rang the doorbell at midnight].

(41) **Who** bought (any) cakes?

- (42) a. I wonder [**who** bought (any) cakes].
b. I know [**who** bought (*any) cakes].

(F) Complementiser *que* in Spanish interrogatives

An additional distinction between true interrogative complements and resolutives, again not found in English, but well-attested and much-discussed for Spanish, is the possibility for co-occurrence of the complementiser *que* ‘that’ with the *wh*-expression in an embedded interrogative clause. First discussed by Plann (1982), and subsequently treated by Suárez (1991, 1993), Lahiri (2002), Demonte & Soriano (2009), and De Cuba & MacDonald (to appear)), the observation is that the complementiser *que* can optionally precede the *wh*-expression of certain *wh*-interrogative complements (43), but not others (44). In our terms, the distinction appears to be between true embedded interrogative complements in which

the complementiser can precede the interrogative *wh*-expression, and resolute complements in which it cannot.¹⁷

- (43) Me preguntaron (que) a quién invitarás tú al concierto.
 to-me they-asked (that)to whom will-invite you to-the concert
 ‘They asked me whom you will invite to the concert.’

[Suñer (1991: 283), ex. (1a)]

- (44) Juana no sabía (*que) cuándo visitaría a sus abuelos.
 Juana not know (*that) when would-visit to her grandparents
 ‘Juana didn’t know when she would visit her grandparents.’

[Suñer (1991: 283), ex. (3a)]

Since Suñer (1991, 1993), the data in (43) and (44) have been used to motivate a semantic distinction between the two types of interrogative complement. More recently, de Cuba & Macdonald (2012) argue for a syntactic distinction between the two, in a similar spirit to that guiding us here: for them, the (in)ability for a complementiser to occur is a clear syntactic property, which thus requires a syntactic explanation. We are again dealing with two distinct kinds of interrogative complement clause, differentiated both interpretively and syntactically.

Note, interestingly, that in contrast to the other syntactic properties considered to date, in this instance it is resolutives rather than true embedded interrogatives which seem to share the behaviour of root interrogatives, from which the complementiser *que* is also excluded (45). However, it seems likely that this fact is to be attributed to different sources. Main clause interrogatives disallow the complementiser by the very fact of being root clauses, a property that is not shared by resolutives. Thus this appears to be an accidental similarity and is not to be taken to suggest that resolutives are root-like.

- (45) a. (*Que) a quién invitarás tú al concierto?
 (*that) to whom will-invite you to-the concert
 ‘Whom will you invite to the concert?’
 b. (*Que) cuándo visitaría a sus abuelos ?
 (*that) when would-visit to her grandparents

¹⁷ There is some disagreement as to the precise classification of the predicates which do and do not permit *que* + *wh*-interrogative complements, the details of which would take us too far from the main focus of the discussion here (but see e.g. Lahiri (2002: 262-278) for discussion). It is not clear that this is exactly the same range of predicates as embed resolutives in English however. The interrogative complement to *not know* in English, appears to behave like a true interrogative rather than a resolute (in contrast to the complement to *know*) on at least some diagnostics (see Ohlander 1986, and discussion of this in footnote 4 above). The complement to *not know* in the Spanish example (44) rather shows the behaviour of a resolute, in rejecting the complementiser *que*. The point of relevance for our purposes is the fact that there are two distinct types of *wh*-interrogative complement, which correspond broadly to the ‘true interrogative’ and ‘resolute’ classes we have already identified.

‘When would she visit her grandparents?’

(G) Alternation with non-restrictive relative clauses

Matos & Brito (2012a,b) observe that resolutives (‘improper indirect questions’ in their terms) alternate with DPs containing restrictive relatives (46) in a way that true interrogatives (‘proper indirect questions’) do not (47). Although the illustration they provide is from European Portuguese (EP), they note that the same holds for Spanish and English.

- (46) a. Eles sabem [que atitudes devem tomar]. [resolutive]
they know which attitudes should take
‘They know which kinds of attitudes they should take.’
b. Eles sabem [as atitudes que devem tomar].
they know the attitudes that should take
‘They know the attitudes that they should take.’
[Matos & Brito (2012a: 1) ex. (1), (2)]

- (47) a. Eles perguntaram[que atitudes devem tomar]. [true interrogative]
they asked which attitudes should take
‘They asked which kinds of attitudes they should take.’
b. *Eles perguntaram [as atitudes que devem tomar].
they asked the attitudes that should take
‘They asked the attitudes that they should take.’ [Matos & Brito (p.c)]

Alone, these data does not argue for a syntactic or interpretive distinction between resolutives and true interrogatives. The distribution of DPs containing restrictive relative clauses seems to be conditioned by their DP status: as Matos & Brito (2012a: 6) discuss. Unlike resolutives, they can occur as the complement to predicates which select DP complements but not CP complements (e.g. *order*, *buy* and *read*), as illustrated in the contrast between (48a) and (48b). Conversely, as Matos & Brito (2012a: 3-4) note, some verbs of communication, which take resolutive complements, nevertheless reject restrictive relative clauses as complements, citing the predicates *dizer* ‘say’ and *comunicar* ‘communicate’ (cf. 49). In the end, all this seems to tell us is that the predicates which accept resolutive complements generally also accept DP complements, whilst the predicates which accept true interrogative complements often do not, or accept only a very limited range of DP complements.¹⁸ Whilst this is a potentially interesting correlation, in itself it

¹⁸ This is an issue which I return to in section 3.2.4 below, when I discuss the confusion surrounding the distinction between resolutive and free relative complements, which arises in the same context: under predicates which can embed both resolutive CP and DP complements.

does not tell us anything about the syntactic or semantic distinction between true interrogatives and resolutes. What we learn from Matos & Brito's account concerns the syntax of the matrix predicates (specifically, their selectional requirements), not that of the complement clauses which they (may or may not) embed.

- (48) a. *Eu encomendei/comprei/li que livro tu escreveste.
 I ordered/bought/read which book you wrote.
 b. Eu encomendei/comprei/li o livro que tu escreveste.
 I ordered/bought/read the book that you wrote.
 'I ordered/bought/read the book that you wrote.'

[Matos & Brito (2012a: 6) ex (22), (23)]

- (49) a. Ela disse/comunicou que estratégia era preciso adoptar.
 She said/communicated which strategy was needed to adopt.
 'She said/communicated which strategy we should adopt.'
 b. *Ela disse/comunicou a estratégia que era preciso adoptar.
 She said/communicated the strategy that was needed to adopt.
 'She said/communicated the strategy that we should adopt.'

[Matos & Brito (2012a: 4) ex. (14)]

(H) 'Substitutivity'

A related test for distinguishing interrogative complements is so-called 'substitutivity'. Discussed by Turnbull-Sailor (2007: 17), but attributed to Quine (1963) (see also Ginzburg & Sag (2000: 66), the claim is that it is possible to replace the interrogative complements to *ask* but not to *find out* by a "question-denoting nominal" such as 'a question' or 'an issue', as the contrast in (50) is intended to illustrate.¹⁹ If John asked who left, John asked a question. However, if John found out who left, it does not follow that John found out a question - rather, at an intuitive level, he found out the answer to a question. Resolutes, it seems cannot be substituted for by a "question-denoting nominal".

¹⁹ See also Grimshaw's (1979: 297-306) discussion of concealed questions. Another distinction between true interrogative and resolute complements which could be considered a sort of 'substitutivity' involves the ability for appositive phrases to follow the *wh*-complement clause. As Elliott (1974: 235) observes, this is possible in resolutes (ib) but not true interrogatives (ia). For further discussion of this property, see section 3.2.3.2 (F) below.

- (i) a. *I wonder [what sort of house he lives in, a two-room shack]. [Elliott (1974: 235), ex. (39, 40)]
 b. Everyone knows [what sort of house he lives in, a two-room shack]. [Elliott (1974: 235 f.n. 8), ex. (i)]

- (50) a. John asked who left. → John asked a question.
 b. John forgot who left. → * John forgot a question

This initially seems surprising, given that the outcome of the discussion in section (H) above seemed rather to be that it is those predicates with resolute complements which are more often capable of taking DP complements, on the basis of the distribution of restrictive relative clauses. However, there are a few points to consider. Firstly, as Turnbull-Sailor (2007: 18 f.n.11) notes, this test has limited applicability, for precisely the reason that many of the predicates of the *ask*-class do not accept nominal direct object complements at all. The interrogative complements to *want to know*, for instance, behave like those to *ask* (in permitting aggressively non-D-linked *wh*-expressions for instance), and yet the predicate still fails the substitutivity test (51a). What makes this all the more surprising is the fact that *want to know* does not in principle exclude nominal complements, as we see from the grammaticality of (51b). Failing the test thus does not necessarily make the complement in question a resolute rather than a true interrogative.

- (51) a. John wanted to know who (the hell) had left
 → * John wanted to know a question.
 b. John wanted to know the identity of the guests who had left.

Furthermore, neither is it clear what passing the substitutivity test tells us. Having the ability to take a “question-denoting nominal” does not seem to entail anything about the clausal-complement-taking properties of a predicate, given that *raise* can take *a question* as the complement (52a), despite not taking clausal complements at all (52b). In addition, considering the pattern in (53), we see that in some instances resolutives (56b) as well as true interrogatives (53a) can be substituted by the same question-denoting nominal. Once again, whilst this data raises interesting questions about the distribution of (different types of) DP complements in English, it does not seem to contribute to provide evidence either for or against the view that there are two distinct types of finite complement clause in English.

- (52) a. He raised a question (concerning the launch date of the new product).
 b. * He raised when the new product would be launched

- (53) a. I asked what his name is. → I asked his name.
 b. I forgot what his name is. → I forgot his name.

3.2.1.4 True interrogatives vs. resolutives: summary

Table 3 - Summary of the properties of true interrogative and resolute complements

		root interrogative	true interrogative	resolute
	Clause-internal properties			
B	Subject-auxiliary inversion	√	%√	*
C	Pre-wh adjuncts associated with lower clause	√	√	*
E	Aggressively non-D-linked <i>wh</i> -expressions and NPIs	√	√	*
F	Complementiser <i>que</i> (Spanish)	*	√	*
	Distributional properties			
A	Convertability	n/a	√	*
D	Clause-fronting	n/a	?√	?*
G	Alternation with noun + non-restrictive relative clauses (English/European Portuguese)	n/a	*	√
H	Substitutivity	n/a	√	*

Table 3 provides a summary of the differences between true interrogatives and resolutives which have been noted in the literature over the years, and which were synthesised and evaluated in section 3.2.1.3 above. For the sake of completeness, I include all of the properties which were discussed, even those such as the possibility of clause-fronting, where it was shown that the cut was not so clear as has previously been claimed. Nevertheless, in many of the cases there is a clear distinction between the behaviour of true interrogatives and the behaviour of resolutives. These properties are grouped into two categories: those which are internal to the clauses in question, and those which concern the external behaviour of the complement clause, in particular its ability to alternate with other kinds of complement.

Considering first the clause-internal properties, the general pattern which emerges is for true interrogative complements to be able to display particular properties which resolutives cannot. In all but one of these cases, this is a property also displayed by root interrogatives. The exception is complementiser *que* in Spanish, which is excluded from both root interrogatives and resolutives, although for independent reasons, as noted above. The pattern for the distributional properties is in fact similar: three of the four involve alternations which are possible with true interrogative complements but not resolutives, for the fourth (alternation with non-restrictive relative clauses) this is the converse. As already observed however, these patterns are at best revealing when it comes to general correlations in the kinds of complements which different classes of predicates allow, but not about distinctions between kinds of interrogative complement clause themselves. They nevertheless serve to reinforce the fact that two types of interrogative complement need to be distinguished.

3.2.1.5 Two types of what?

Having provided evidence in favour of distinguishing two types of *wh*-complement clause which are often conflated under the label ‘interrogative’, namely those referred to here as ‘true interrogative’ and those which I label ‘resolutive’, the question arises as to what extent it is appropriate to continue to think of them both as being sub-types of ‘interrogative’ complement, as I have done up until this point. Not all of those who recognise a distinction between the two types of *wh*-complement clause under discussion consider it to be a question of distinguishing two types of interrogative. Turnbull-Sailor (2007), for instance, provides a detailed and insightful catalogue of empirical observations which support the distinction outlined here, but argues that only the first of these types of *wh*-complement clause is truly interrogative, whilst the other - what I have called a resolutive - is in fact a free relative. In 3.2.4 below, I tackle precisely this case of conflation of categories, found in many other works too, and show that we do need to identify a type of *wh*-complement ‘resolutive’ distinct from a free relative. I discuss an array of distinguishing properties which can be made use of in determining the status of problematic examples, in much the same way as I do when distinguishing resolutives and exclamatives in section 3.2.3.

Whilst rejecting the idea that what I call ‘resolutives’ are really free relatives, it is nevertheless indisputable that true interrogatives appear to have much more in common with root interrogatives than resolutives do, in terms of both their semantic and syntactic behaviour. The only property that we saw which resolutives seemed to share with root interrogatives to the exclusion of true interrogative complements was the possibility for complementiser *que* to occur in Spanish, but this is the consequence of the root status of root interrogatives and not due to a common strand with resolutives. Perhaps one of the strongest motivations for considering resolutives, together with true interrogatives, as sub-

types of ‘interrogative’ complement is that they are introduced by the same range of basic *wh*-expressions, which also introduce root interrogatives.²⁰ Whilst there may be particular instances of resolutes and exclamatives, or resolutes and free relatives, which show a surface resemblance, it is not the case that all resolutes and exclamatives, or all resolutes and free relatives look alike. For instance, a *wh*-complement introduced by the sequence *what a* is necessarily an exclamative (see section 3.2.3), whilst a *wh*-complement introduced by the sequence *whatever books* must be a free relative (see section 3.2.4). True interrogatives and resolutes differ in this regard, since, in English at least, they cannot be set apart by the *wh*-expression that introduces them. This provides motivation for the labelling of both kinds of complement as ‘interrogative’. It is clear that we want to distinguish true interrogatives from resolutes. What is less clear is how much these two types of finite clausal complement really have in common. I will say more on this issue in the very final section of this chapter, when, having distinguished the 5 kinds of FCC I will consider here, I compare them all on the basis of the full range of properties discussed.

3.2.2 Factive vs. non-factive *that*-clauses

The situation regarding *that*-clauses is in many ways analogous to that outlined above for true interrogative and resolute clauses.²¹ Although the *that*-clause complements in (54) and (55) are identical in terms of the surface string involved, a distinction has been made between non-factive (54) and factive (55) variants. Because of the superficial identity, the two clause-types have often been conflated in the literature. Yet there is also a considerable body of work indicating that there are grounds for considering the two as distinct types of finite clausal complement, on the basis of differences in interpretation and syntactic behaviour.

(54) I thought [**that** Mary had wanted to go to Spain]. [non-factive *that*-clause]

²⁰ As discussed in section E above, true interrogatives and resolutes are differentiated by the ability of aggressively non-D-linked *wh*-expressions to occur in the former but not the latter. Whilst in a sense this is then a difference in the range of *wh*-expressions available, it is one which is attributed to the ability of NPIs to be licensed in a particular context.

²¹ Unlike true interrogatives and resolutes, which occur under distinct classes of predicates (see discussion in footnote 2), there are certain predicates which seem to be able to take either factive or non-factive *that*-clause complements, as the contrast between (i) and (ii) suggests. In Chapter 5, section 5.3.2.4.4a, I discuss the behaviour of such semi-factive predicates in detail (cf. Karttunen (1971), concluding that the positive and negative variants of *remember* should be treated as distinct predicates with their own complementation requirements: for a factive *that*-clause in the former case, a non-factive *that*-clause in the latter case.

(i)	I remember that he took the keys.	⇒	he took the keys
(ii)	I don't remember that he took the keys.	⇏	he took the keys

(55) I forgot [**that** Mary had wanted to go to Spain]. [factive *that*-clause]

There is an even more extensive literature on *that*-clauses than on embedded interrogatives. For that reason, the discussion here will of necessity be selective rather than exhaustive. To deal comprehensively with the topic of factivity would be a project in its own right, hence I limit my attention to presenting and evaluating certain core and seemingly robust properties which are considered to distinguish factive *that*-clauses from non-factive *that*-clauses. Kiparsky & Kiparsky (1971) are to be credited for the identification of a distinction between two kinds of *that*-clause, and characterisation of this in terms of factivity. Their observations have been refined, expanded upon and added to in more recent work.

3.2.2.1 Semantic distinctions between factive and non-factive *that*-clauses

Up until this point, I have been making use of the labels ‘factive’ and ‘non-factive’ without elaborating on their origin. They stem from what is taken to be the core semantic differences between the FCC illustrated in (54), and that given in (55). Along with Kiparsky & Kiparsky (1971) Karttunen (1971, 1973) was one of the most influential figures in showing that a different logical relationship holds between matrix predicate and complement clause in ‘factive’ cases such as (57), in comparison to non-factive cases such as (56). If a finite clausal complement is factive, the truth of its propositional content is presupposed (rather than asserted) to be true. Presupposition, on the relevant semantic definition (see Shanon 1976 on the distinction between semantic and pragmatic presupposition), is a logical entailment of the truth of the propositional content of the complement clause, which holds not only in positive declarative contexts, but also under the scope of sentential negation, in interrogatives, and in conditionals. In none of the contexts in (56) - positive declarative (a), negative declarative (b), interrogative (c), or in the antecedent of a conditional (d) - is there a logical implication of the propositional content of the complement clause. By contrast, as shown in (57), the truth of the factive *that*-clause is logically entailed in all of these contexts. Another way of putting this is that the truth of the sentences in (56) is evaluated independently of the truth of the embedded clause - the sentences in (56) can be perfectly true even if there is no such fortress beyond the next hill. This is not the case for the sentences in (57), a large fortress must stand beyond the next hill in order for the sentence as a whole to be true. We can see this even more clearly if we choose propositional content for the embedded clause which we know from our world-knowledge to be false, as in the examples in (58) and (59). In the non-factive (58), this is perfectly felicitous. However, the factive (59) is pragmatically odd, as it involves the presupposition of truth for a proposition which our general knowledge tells us to be false.²²

²² The examples in (56) and (57) are modelled on Hooper & Thompson (1973: 474, 479, 480), ex. (48), (107), (123).

- (56) a. She claimed [**that** a large fortress stood beyond the next hill].
 ⇒ a large fortress stood beyond the next hill
 b. She didn't claim [**that** a large fortress stood beyond the next hill].
 ⇒ a large fortress stood beyond the next hill
 c. Did she claim [**that** a large fortress stood beyond the next hill]?
 ⇒ a large fortress stood beyond the next hill
 d. If she claimed [**that** a large fortress stood beyond the next hill], then we should
 keep walking.
 ⇒ a large fortress stood beyond the next hill
- (57) a. She forgot [**that** a large fortress stood beyond the next hill].
 ⇒ a large fortress stood beyond the next hill
 b. She didn't forget [**that** a large fortress stood beyond the next hill].
 ⇒ a large fortress stood beyond the next hill
 c. Did she forget [**that** a large fortress stood beyond the next hill]?
 ⇒ a large fortress stood beyond the next hill
 d. If she forgot [**that** a large fortress stood beyond the next hill], then we should
 keep walking.
 ⇒ a large fortress stood beyond the next hill
- (58) a. John believes [**that** the Earth is flat].
 b. John doesn't believe [**that** the Earth is flat]
- (59) a. # John resents [**that** the Earth is flat]
 b. # John doesn't resent [**that** the Earth is flat]

[De Cuba & Ürögdi (2009: 32) (ex. (2, 3))]

As is already clear from the above discussion, the property of factivity seems related not just to the finite complement clause itself, but to the syntactic properties of the context in which it is embedded - the particular matrix predicate, the presence or absence of negation, and so on. For this reason, it is sometimes suggested that there is only one kind of *that*-clause complement, and that its interpretation is dependent upon the context in which it occurs (cf. Grimshaw's (1979: 320) claim that '[s]ince *that*-complements occur with both factive and nonfactive contexts, i.e. both where their propositional content is presupposed and where it is not, there is nothing inherent to *that*-clauses that dictates whether or not they can be presupposed'). I return to the issue of the source of factivity in Chapter 6. At this stage my goal is merely to document such interpretive differences, not to explain them. Whether we ultimately consider this to be a property of the *that*-clause complement itself, or of the matrix predicate, or to be the result of the combination of the two does not alter the basic observation that in terms of interpretation, we can identify two types of *that*-clause

complement. Therefore for the moment, I simply note two points. Firstly, if there is only one kind of *that*-clause complement, the fact that two distinct patterns of syntactic behaviour can be identified, as will be discussed in 3.2.2.2, is difficult to explain. Secondly, it is not just within the syntactic literature that evidence has been presented for two kinds of *that*-clause complement, but in certain semantic accounts too. Within the situational semantics model used by Ginzburg & Sag (2000), for instance, non-factive *that*-clauses are characterised as being of the semantic type ‘proposition’, whilst factive *that*-clauses are classified as ‘facts’.²³

Although the work of Kiparsky & Kiparsky (1971) has had a lasting impact, and the distinction between the two types of *that*-clause is still frequently construed in their terms of ‘factive vs. non-factive’, over the years there has been debate in the literature as to whether factivity is the correct characterisation of the property which distinguishes the two types of *that*-clause. It has alternatively been proposed that *that*-clauses differ rather in terms of definiteness (Melvold 1991), familiarity (Hegarty 1992) or referentiality (de Cuba & Ürögdi 2009a,b; Haegeman & Ürögdi 2010a,b; Hinzen & Sheehan 2011). The precise characterisation of this property lies beyond the scope of this work. I continue to make use of the terms ‘factive’ and ‘non-factive’, but it should be borne in mind that the crucial point for my purposes is that there is an interpretive difference between the two kinds of *that*-clause, however this is labelled.

The final proviso is that although the focus here is on a binary system for distinguishing *that*-clauses - factive vs. non-factive - other more complex systems have been proposed, such as the tri-partite classification put forward by Baunaz (under review) for French *que* (‘that’)-clause complements. This takes into account not only the factive/non-factive distinction, but also distinguishes declarative complements in terms of mood (indicative vs. subjunctive). As noted at the very start of section 3.2, such a distinction falls beyond the scope of this work. The system which I propose for characterising finite clausal complements (both *that*-clauses and *wh*-clauses) is presented in Chapter 5.

3.2.2.2 Distinctions between factive and non-factive *that*-clauses

From Kiparsky and Kiparsky’s (1971) influential paper onwards, it has been noted that factive and non-factive *that*-clauses can be set apart in a number of ways in terms of the

²³ Note that for Ginzburg & Sag (2000), factive and non-factive *that*-clauses are fundamentally of different types to begin with. This is in contrast to what they propose for true interrogative and resolute complements, which they consider to originate as the same type ‘question’. See Chapter 5, section 5.2.2.1 for further discussion of their account.

properties they display. It is to these which I turn in the following section, discussing some of the most striking distinctions.

(A) Island strength

One of the clearest distinctions between factive and non-factive *that*-clauses is in terms of island strength; that is to say, the ease with which various constituents can be extracted from these finite complement clauses (see e.g. Rizzi (1990), Rooryck (1992), and references therein, Basse (2008)).²⁴ Non-factive *that*-clause complements are not islands for extraction, as both arguments and adjuncts can be extracted from the *that*-clause without degradation in grammaticality, as we see in (60). This contrasts with extraction from factive *that*-clauses, as illustrated in (61). Whilst arguments can be extracted without compromising grammaticality (cf. 61b), adjunct extraction is degraded or impossible (cf. 61c). Thus factive *that*-clauses, like *wh*-clauses, are taken to be weak islands.

- (60) a. I thought [that she read the book about bears].
 b. Which book did you think [that she read ~~which book~~]? [argument extraction]
 c. When did you think [that she read the book ~~when~~]? [adjunct extraction]
- (61) a. I forgot [that she read the book about bears].
 b. Which book did you forget [that she read ~~which book~~]? [argument extraction]
 c. * When did you forget [that she read the book ~~when~~]? [adjunct extraction]

The picture given here is admittedly a much simplified one. Properties of both the embedding clause and of the *wh*-expression (e.g. D-linked vs. non-D-linked) influence judgements on grammaticality. Nevertheless, when these are taken into account, the pattern presented above seems robust, and to indicate a structural distinction between the two kinds of *that*-clause FCC already posited on semantic grounds.

(B) Availability of (some) Main clause phenomena (MCP)

‘Main clause phenomena’ (MCP) (or Root Transformations, as they were termed in Emonds’ (1970) original account) is a cover-term applied to a wide class of syntactic processes which were initially characterised as occurring in certain root/main clauses only. Even in Emonds’ own work, however, it was already noted that these could additionally be found in certain embedded clauses, an observation pursued by Hooper & Thompson (1973)

²⁴ There are accounts which consider islands to be a semantic rather than a syntactic phenomenon (e.g. Abrusán 2011), but most accounts treat the distinction between e.g. (60c) and (61c) as being structural.

and in much subsequent literature (see Heycock (2006), Aelbrecht, Haegeman & Nye (2012) for overviews of the literature). It has been claimed that the crucial distinction between *that*-clauses which permit MCP and *that*-clauses which do not permit MCP is that the former are asserted, whilst the latter are presupposed (see especially Hooper & Thompson 1973). Over the years, this behaviour has been analysed as a consequence of differences in both the syntactic structure of these clauses (originating with Emonds (1970), see Haegeman (2012b) for a recent example) and their semantics/pragmatics (originally proposed by Hooper & Thompson (1973), see Bianchi & Frascarelli (2012) for a more recent instantiation). Regardless of the analysis, such contrasts appear to set apart factive and non-factive *that*-clauses.

MCP include topicalisation (62), negative preposing (63) and locative inversion (64) (see Hooper & Thompson (1973) and Heycock (2006) for a more extensive overview of the inventory of MCP). For each of these phenomena, we see the same pattern: its (optional) occurrence in main clauses (the (a) examples) and in non-factive *that*-clauses (the (b) examples), and the contrasting ungrammaticality of corresponding factive *that*-clauses involving the same MCP (the (c) examples).

- (62) a. This book, Mary read last semester.
b. John believes [**that** this book Mary read last semester].
c. *John regrets [**that** this book Mary read last semester].
[Maki et al. ((1999: 3), ex. (2c))].
- (63) a. Never in my life have I seen a hippopotamus.
b. He claimed [**that** never in his life had he seen a hippopotamus].
c. * He was surprised [**that** never in my life had I seen a hippopotamus].
[Hooper & Thompson (1973: 479), ex. (103)]
- (64) a. Beyond the next hill stood a large fortress.
b. She believed [**that** beyond the next hill stood a large fortress].
c. * She forgot [**that** beyond the next hill stood a large fortress].
[modeled on Hooper & Thompson (1973: 479), ex. (48, 10)]

Once again, the picture presented is of necessity something of an oversimplification. One complicating factor is that, as Hooper and Thompson (1973: 480-481) note, the *that*-clause complements to the semi-factive predicates (e.g. *find out*, *realise*) do permit MCP in positive declarative contexts, despite behaving semantically as factive clauses in such contexts. Secondly, it is by no means clear that all MCP show the same distribution. There is an increasing awareness of the fact that they are not necessarily the homogeneous class they were once thought to be (see discussion in Aelbrecht, Haegeman & Nye (2012), and other contributions to the same volume, especially Miyagawa (2012)). Furthermore, there is the little-explored issue of speaker variation. Hooper & Thompson (1973) already observe that there are a class of English speakers - to whom I belong - for whom MCP are in fact

acceptable in factive *that*-clauses, and thus for whom the contrast between the (b)-examples and (c)-examples in (62)-(64) does not hold. The judgements given above are as per Hooper and Thompson (1973). (62c), (63c) and (64c) are in fact acceptable in my own idiolect.

However, these complicating factors do not detract from the general pattern, which is that at least for some speakers, the behaviour of certain MCP highlights a contrast between non-factive *that*-clauses (which permit them) and factive *that*-clauses (which do not). In addition, what is particularly interesting is that the ability to display MCP is a property held in common by root declarative clauses and non-factive *that*-clauses, to the exclusion of factive *that*-clauses. This echoes the pattern observed in section 3.2.1.3 above, where certain properties (aggressively non-D-linked *wh*-items; subject-auxiliary inversion in certain dialects...) were seen to occur in both root interrogatives and true embedded interrogatives, to the exclusion of resolutives.

(C) Licensing of NPIs

As was discussed above in 3.2.1.3 above, negative polarity items (NPIs) are licensed within root interrogatives and true embedded interrogatives, but not resolutives, as we saw from the contrast between (41) and (42a) on the one hand, and (42b) on the other. There is no such distinction between root declaratives (65) and embedded factive (66) and non-factive (66) *that*-clauses.²⁵ There is nevertheless one regard in which factive and non-factive *that*-clauses are differentiated when it comes to the licensing of NPIs. Although declarative clauses are not inherent NPI licensors, (67a) shows that an NPI within a non-factive *that*-clause can be licensed by negation external to the clause itself, in this example the matrix negative subject *nobody*. In a factive *that*-clause in the same configuration (cf. 67b), an NPI within the complement clause cannot be licensed from the matrix domain. This may be related to the distinction between these clauses in terms of island strength, discussed above in section (A). See Ross (1967), Kiparsky & Kiparsky (1971) and de Cuba (2007) for discussion of these facts.

(65) * The children brought any cakes.

(66) a. * I believe [**that** the children brought any cakes].

b. * I was glad [**that** the children brought any cakes].

²⁵ Note that there is one particular class of factive predicates, the negative emotive factives, which do appear able to license NPIs in their factive *that*-clause complements, as discussed by Giannakidou (2006: 577). Thus we see that the NPI *anything* is grammatical in the *that*-clause complement to negative emotive factive *regret* (cf. ia), but not in the *that*-clause complement to positive emotive factive *be glad* (cf. ib).

(i) a. Larry regrets [**that** he said anything]. [Giannakidou (2006: 577) ex. (9a,b)]
b. *Larry is glad [**that**he said anything].

- (67) a. Nobody believed [**that** the children had brought any cakes].
 b. * Nobody was glad [**that** the children had brought any cakes].

(D) Alternation with “the fact”

One frequently-cited syntactic distinction between the two types of *that*-clause, first noted by Kiparsky & Kiparsky (1971) and seen to correlate directly with the semantic distinction on the grounds of factivity (discussed in section 3.2.2.1 above), is the possibility for a *that*-clause to alternate with a complement introduced by the overt determiner phrase *the fact*. The claim is that ‘[o]nly factive predicates can have as their objects the noun *fact* with a gerund or *that*-clause’ (Kiparsky & Kiparsky 1971: 347). Thus the factive *that*-clause in (68a) alternates with a similar complement introduced by *the fact*, as in (68b), whereas no such alternation is possible for the non-factive *that*-clause in (69).

- (68) a. I want to make clear [that I don’t intend to participate].
 b. I want to make clear [the fact that I don’t intend to participate].
 [Kiparsky & Kiparsky (1971: 347), ex. (1)]

- (69) a. I assert [that I don’t intend to participate].
 b. * I assert [the fact that I don’t intend to participate].
 [Kiparsky & Kiparsky (1971: 347), ex. (2)]

This tests suffers from the same drawbacks pointed out in relation to the ‘replacement’ tests discussed in relation to interrogative complements in 3.2.1.3 (H) and (I) above. The first of these is its limited applicability. Whilst the observation that factive *that*-clauses can be ‘replaced’ by a clause introduced by *the fact* holds in certain cases, it was already observed by Kiparsky & Kiparsky (1971: 348, footnote *a*) themselves that there are also *that*-clause complements which qualify as factive on their semantic criteria, and yet which do not show this alternation, which they deem typical of syntactic factivity (see also the discussion of this point in Munsat 1986: 210). They provide the example given here in (70) to illustrate this point, but such cases can be multiplied, as the examples in (71) and (72) illustrate. In these instances, factive *that*-clauses are perfectly felicitous (70a, 71a, 72a), but replacement by *the fact that*-clauses (70b, 71b, 72b) is impossible, presumably due to a more general restriction against DP complements in these contexts, at least in the latter two cases (cf. (73)).²⁶ Thus the ability for the *that*-clause complement to alternate with a clause introduced

²⁶ I treat *not care* here as a single predicate, abstracting away from the fact that, unlike the predicates we have been considering to date, its selectional properties depend not just on the matrix verb *care*, but also on the presence of the accompanying sentential negation. Without negation, the predicate *care* is unable to take DP or CP

by *the fact that* cannot be a necessary property in order for a clause to qualify as a factive *that*-clause. Once again, it seems that such tests tell us more about the range of complements a predicate permits than about the intrinsic properties of their finite clausal complements.

- (70) a. I know [**that** John is here].
 b. * I know [**the fact that** John is here]. [Kiparsky & Kiparsky (1971: 348)]
- (71) a. She was glad [**that** a large fortress stood beyond the next hill].
 b. * She was glad [**the fact that** a large fortress stood beyond the next hill].
- (72) a. She didn't care [**that** a large fortress stood beyond the next hill].
 b. * She didn't care [**the fact that** a large fortress stood beyond the next hill].
- (73) a. * She was glad [_{DP} the things that she had done].
 b. * She didn't care [_{DP} the rumours].

Furthermore, having seen that not all factive *that*-clauses show this alternation, it appears that even the weaker claim, that all *that*-clauses which do show this alternation are factive, may not be able to be upheld. Contra the judgement given by Kiparsky & Kiparsky for (69b), there are numerous attested examples of *the fact that* clauses occurring as complements to the predicate *assert*, such as the example provided in (74). If the *that*-clause complement to *assert* is non-factive, then we see an alternation between a non-factive *that*-clause and a clause introduced by *the fact that*.²⁷ Thus the relevant 'alternation' does not apply to all or only factive *that*-clauses, and as such, is not a reliable diagnostic for distinguishing the two types of *that*-clause .

- (74) At the Charlottetown Conference and the two later conferences discussing the confederation, Johnson vigorously asserted [**the fact** that the provincial governments should not hold any power above the course of the county or zone].²⁸

complements at all - (i) is ungrammatical regardless of whether the complement is interpreted as a DP or as a CP. Note that emphatic assertions with auxiliary *do* give the same results as with negation - resolute CP complements are possible (cf. iia), DP complements are not (cf. iib). The complementation possibilities for *not care* are discussed further in Chapter 5, section 5.3.2.4.7.

- (i) * I care [_{DP/CP} what he ate].
 (ii) a. I do care [_{CP} what he ate].
 b. * I do care [_{DP} that]/[_{DP} those things].

²⁷ Alternatively, it could be the case that *assert* is able to take factive *that*-clause complements, despite the fact that the property of 'assertion' is usually opposed to that of 'presupposition', which characterises factivity. The crucial point is that either way it weakens the use of the alternation with *the fact that* as a test for distinguishing factive and non-factive *that*-clauses.

²⁸ From http://en.wikipedia.org/wiki/John_Mercer_Johnson. Last accessed 22.01.2013.

(E) Anaphoric pronouns

An additional test which originates in the work of Kiparsky & Kiparsky (1971), and which has also been made use of in more recent work (cf. de Cuba & Ürögdi 2009a: 21) concerns the pro-forms used to pronominalise the two types of *that*-clause. The intuition behind the discussion ties in with the property discussed under (D), namely that factive *that* clause may be paraphrased by means of a complex nominal headed by the noun *fact* and thus are to some extent seen to be equivalent to a nominal. The original claim is that whilst ‘both factive and non-factive *that*-clauses take the pro-form *it* [...] only non-factive clauses are pronominalised by *so*’ (Kiparsky & Kiparsky (1971: 362). This is illustrated in examples (75) and (76) - the non-factive *that*-clause can be pronominalized by both *it* (75a) and *so* (76a). The factive *that*-clause can similarly be pronominalised by *it* (75b), but resists pronominalisation by *so* (76b).

- (75) a. John supposed that Bill had done it, and Mary supposed it, too.
b. John regretted that Bill had done it, and Mary regretted it, too.

- (76) a. John supposed that Bill had done it, and Mary supposed so, too
b. * John regretted that Bill had done it, and Mary supposed so, too.

[de Cuba & Ürögdi (2009a: 21), ex.

(21)]

However, once again the picture is not quite so clear. There are counter-examples in both directions. Firstly, some non-factive *that*-clauses do not seem (completely) grammatical when pronominalised by *so*, as is the case for (77). More worryingly, when occurring as the complement to the predicate *know*, factive *that*-clauses can in fact be pronominalised by *so*, as Bhatt (2010: 176-177) observes, providing examples such as the attested (78). Once again then, this test does not seem to be a straightforward indication of two distinct types of *that*-clause, for the particular matrix predicate under which such clauses occur also seems to have an influence.

- (77) ?? John asserted that Bill had done it, and Mary asserted so, too.

- (78) Rooney knew he was special from a young age. And those who nurtured a talent that comes along rarely in any sport knew so, too.²⁹

[Bhatt (2010: 177), ex. (5b)]

²⁹ From <http://www.dailymail.co.uk/sport/article-389647/Walking-miracle.html>.

(F) Focus of a cleft

An additional, novel distinction between factive and non-factive *that*-clauses discussed by De Cuba & Ürögdi (2009a) is their ability to occur as the focus of a cleft. According to the data they provide, non-factive *that*-clauses are excluded from such a position (79a), whereas factive *that*-clauses are not (79b).³⁰

- (79) a. *It's [that John didn't show up which] I believe.
b. It's [that John didn't show up which] I resent.

(G) Form of the complementiser

Although in English, there is no obvious surface distinction between factive and non-factive declarative complement clauses, when we look beyond English, we find that there are many languages which make use of distinct complementisers to introduce factive and non-factive *that*-clauses, including Japanese (Miyagawa 2012), Korean (Moulton 2009), Meiteilon (Kidwai 2010), and Modern Greek (MG). It is the last of these languages which I present here briefly.

The complementiser system of Modern Greek has been thoroughly studied by Roussou (1992; 1994; 2000; 2010) amongst others (Christidis 1986, Varlokosta 1994). Simplifying somewhat, MG has both a factive complementiser *pu* and a non-factive complementiser *oti* to introduce declarative complement clauses.³¹ Presenting data from Roussou (2010), we see that in contexts where we know from their semantic behaviour that the complement clauses are non-factive (e.g. under predicates such as *think* and *believe*, as in (80)), the only declarative complement clauses possible are those introduced by *oti*. Conversely, in contexts where the complement clause receives a factive interpretation, as is the case under predicates such as *be glad* in (81), only clauses introduced by *pu* may occur. The contrast is even more apparent in cases such as (82), where both *oti*- and *pu*-clauses can occur under the same matrix predicate, but with a distinct interpretation arising dependent on the complementiser selected. Pre-empting the discussion in Chapter 6, it is cases such as these which seem to give convincing support for the view that the distinction in factivity really is situated within the finite complement clauses themselves, rather than in the matrix predicate.

³⁰ De Cuba & Ürögdi (2009a) in fact rather construe this as a distinction between referential and non-referential clauses, in line with their particular characterisation of the two kinds of *that*-clause complement. As discussed in 3.2.2.1 above, it is the empirical evidence for making such a distinction which is of importance here, rather than the precise characterisation of the distinguishing property.

³¹ There is an additional declarative complementiser in Modern Greek, *pos*, which has more in common with English complementiser *how*, discussed at length in Chapter 4. I do not discuss *pos*-clauses here.

- (80) Pistevó/nomízo [oti/*pu efije noris].
 believe-1s/think-1s that left-3s early
 ‘I believe/think that he left early.’ [Roussou (2010: 593 ex. (23a))]
- (81) Xeromé [*oti/pu o Janis elise to provlíma].
 am-glad that the John solved-3s the problem
 ‘I’m glad that John solved the problem.’ [Roussou (2010: 582 ex. (1c))]
- (82) Thímame [oti/pu dhjavaze poli]. [Roussou (2010: 590 ex. (17))]
 remember-1s that read-3s much
 ‘I remember that he used to read a lot/I remember him reading a lot.’

Here I have only sketched the most basic distinctions between *oti*-clauses and *pu*-clauses in MG, and have not attempted to do justice to the complexity of the complementation systems in this language. My goal was simply to illustrate that there are languages which make more overtly the point for which I have adduced less direct evidence from English throughout section 3.3.2.2: that there is good evidence for distinguishing two kinds of finite *that*-clause complements, here labelled ‘factive’ and ‘non-factive’. The fact that this distinction is not reflected in the lexical form of the complementiser in English, unlike in Modern Greek, makes it no less real.

3.2.2.3 Factive vs. non-factive *that*-clauses: summary

Table 4 - Summary of the syntactic properties of factive and non-factive *that*-clause complements

		root declarative	non-factive <i>that</i> - clause	factive <i>that</i> - clause
	Clause-internal properties			
A	island for extraction	n/a	*	√
B	MCP	√	√	% *
C	NPIs licensed by clause-external negation	n/a	√	*
E	anaphoric pronouns	n/a	<i>it, so</i>	<i>it</i>
G	form of the complementiser (Modern Greek)	n/a	<i>oti</i>	<i>pu</i>

	Distributional properties			
D	alternation with “the fact”	n/a	*	√
F	focus of cleft	n/a	*	√

Table 4 summarises the syntactic properties of factive and non-factive *that*-clause complements, as documented in the literature and evaluated above. The table again provides a somewhat idealised view, reflecting the discussions in the literature, and does not do justice to all of the exceptions and complications noted in the course of the discussion of each property. With this broad view, there are clear distinctions between factive and non-factive *that*-clauses, and in English just as much as languages such as Modern Greek, which wear the distinction on their sleeves, with distinct complementisers to introduce factive and non-factive *that*-clauses. In terms of the other clause-internal properties, the results consistently go in the direction of non-factive *that*-clauses permitting more than factive *that*-clauses: the former permit MCP and allow NPIs to be licensed by clause-external negation, they are not islands (i.e. they allow extraction of both adjuncts and arguments) and they can be referred to by one of two anaphoric pronouns, only one of which can be used to refer to a factive *that*-clause. This mirrors the findings for interrogatives, where true interrogatives were also shown to allow more than resolutes. In terms of distributional properties, however, it is factive *that*-clauses which can occur in contexts from which non-factive *that*-clauses are claimed to be excluded: in alternation with complements introduced by *the fact that...*, and as the focus of a cleft. However, as we will see in section 3.3, when all five kinds of FCC discussed in this chapter are compared with each other and with free relatives, with regard to a range of properties, there are other regards in which non-factive *that*-clauses have a broader distribution than factive *that*-clauses, for instance in their ability to be fronted.

In the discussion of the two types of interrogative complement clause, summarised in 3.2.1.4 above, another clear trend emerged, which was that true interrogatives display a greater number of similarities to root interrogatives than resolutes do. With respect to *that*-clause complements, the fact that many of the tests made use of here are applicable only in the embedded domain means that little can be concluded about the root-like nature of the clauses. Nevertheless, on the one test which can be applied to root declaratives, non-factive *that*-clauses pattern like root declarative clauses in permitting MCP, whilst for many speakers these are excluded from factive *that*-clauses. Section 3.3, where the observations about the behaviour of the five different FCCs under consideration in this chapter are pulled together, allows us to compare for instance the behaviour of factive *that*-clauses and resolutes.

3.2.2.4 Factive *that*-clauses as DPs?

As was made clear from the outset, the aim of this chapter is simply to document and assess the properties which have been claimed to distinguish types of finite clausal complements, not to discuss the analyses which have been provided for them. Nevertheless, it has been observed that on many of the tests applied here (amongst others, cf. Kiparsky and Kiparsky (1971); de Cuba (2007: 2-3)), factive *that*-clauses share properties with nominal complements (e.g. alternation with *the fact*; pronominalisation by *it*; inability for NPIs to be licensed, ability to occur as the focus of an *it*-cleft). Anticipating the discussion in Chapter 6, section 6.2.1.3, this had led to proposals for factive *that*-clauses in which they are also taken to involve a nominal element and/or a determiner in their syntactic structure. Here I provide data from the distribution of factive *that*-clauses which gives a preliminary indication that they are indeed rightful members of the typology of clausal complements (unlike the free relative complements discussed below in 3.2.4.1, which are to be analysed as nominals).³² In Chapter 5 the distribution of all types of FCC is thoroughly discussed. (*Not*) *care* is a predicate which does not permit nominal complements (83a), and yet with which a *that*-clause complement is possible (83b).³³ The logical implications in (84) show that this *that*-clause is factive. Conversely, nominal complements to prepositions are grammatical (85a), and yet (both factive and non-factive) *that*-clause complements to prepositions are ungrammatical (85b).³⁴ This suggests that the similarities in syntactic

³² Note that in some languages, factive clauses appear to be derived as relatives, a fact reflected in the form of the complementiser introducing them, which is syncretic with that of a relative pronoun. See Aboh (2005) on factive clauses in Gungbe, Krapova (2010) on Bulgarian, and Tamba & Torrence (2013) on Wolof. The relative clause analysis of factive *that*-clauses is discussed further in Chapter 6, section 6.2.1.3.

³³ The ability of (*not*) *care*, (*not*) *give a damn* and *inquire* to permit certain CP complements but not DP complements is observed by Grimshaw (1979: 303). Note that with these predicates, the restriction against DP complements seems absolute - even the pro-form *that* and the minimally contentful DP in (i) are excluded. In this regard, there is a contrast with predicates such as *realise* and *find out* (the latter noted by Grimshaw 1977: 180 f.n.5), which although appearing to reject contentful DPs, as in (iia), accept the less contentful DPs in (iib), as well as CP complements (iic). Note that in this regard, *find out* contrasts with its near-synonym *discover*, which additionally accepts contentful DPs.

(i) * I don't care [_{DP} that]/[_{DP} those things].

(ii) a. * I (quickly/already) realised [_{DP} his unwillingness to help].

b. I (quickly/already) realised [_{DP} that]/[_{DP} those things].

c. I (quickly/already) realised [_{CP} why he was unwilling to help].

³⁴ Note that it has in fact been claimed that the restriction on a *that*-clause CP occurring as the complement to a preposition is not absolute. On the basis of examples such as (i) and (ii), which he takes from the sources referenced below, Yamabe (1993:119) argues that 'a *that*-clause is a legitimate object of prepositions', but that morphological constraints rule out the sequence 'P *that*', where a syntactic relation holds between P and *that*. Where such a string is avoided, a *that*-clause may however be the complement to P. In the examples in (i), the *that*-clause complement appears to have been displaced, and so no longer follows the preposition it is understood to be the complement of in the linear sequence: (ia) involves topicalisation of the *that*-clause, and (ib) is a pseudo-cleft. In the examples in

behaviour between factive *that*-clauses and DPs are not to be accounted for by assimilating the former to the latter.

- (83) a. * I don't care [_{DP} his absence]/[_{DP} that].
 b. I don't care [_{CP} **that** he hardly ever shows up at school].
- (84) a. I do care [**that** he hardly ever shows up at school].
 ⇒ he hardly ever shows up at school
 b. I don't care [**that** he hardly ever shows up at school].
 ⇒ he hardly ever shows up at school
- (85) a. We talked about [_{DP} his absence]/[_{DP} that].
 b. * We talked about [_{CP} **that** he hadn't shown up at school].

3.2.3 Exclamatives vs. interrogatives

The third case of confusion between types of English finite complement clause which I tackle here differs in nature from the first two. Both the true interrogative vs. resolute distinction discussed in 3.2.1, and the factive vs. non-factive *that*-clause distinction discussed in 3.2.2 can be conceived of as concerning sub-divisions within what was previously taken to be a single class - 'interrogative' and 'declarative' complements respectively. These over-arching classes are not in themselves controversial, however. The very existence of embedded exclamatives, on the other hand, has been disputed.³⁵ Even by those who do not actively deny their existence, they have often simply been overlooked, and to this day are frequently confused with other types of FCC, in particular interrogatives (or, to be more precise, resolutives).

(ii), even if the *that*-clauses are analysed as remaining in situ, the illicit sequence *P+*that* is avoided: either the *that*-clause is the second conjunct in a coordination structure (iia) or additional material intervenes between the preposition and the *that*-clause (iib).

- (i) a. [That he might be wrong], he didn't think **of**. [Kaplan and Bresnan 1982, (136b)]
 b. What he didn't think **of** was [that he might be wrong]. [Rosenbaum 1967: 83]
- (ii) a. We talked **about** [Mr. Carlson] and [**that** he had worked at the White House]. [Sag *et al* 1985 (124a)]
 b. We can fully rely **on**, first, [**that** the data were obtained through a deliberate series of experiments] and, second, [**that** a computer was used for the calculation]. [Sag *et al* 1985]

³⁵ See for instance Elliott's (1974: 233) comment that 'Kimball has recently argued that what I call embedded exclamations are in fact a subtype of indirect or embedded questions, calling them "conjunctive questions".' Unfortunately, I have been unable to find any trace of this paper (John Kimball, 'Notes on Conjunctive and Disjunctive Questions', paper read to the First Annual California Linguistics Conference 1971), referred to by Elliott (1974: 233) in his footnote 7.

(86) a. Gary wondered [**how high** the bathroom ceiling is].
b. Ethel wondered [**what** Charles' job is].

(87) a. * Gary wondered [**how very high** the bathroom ceiling is].
[Rett (2008a: 192), ex. (88b)]
b. * Ethel wondered [**what a dork** Charles is]. [Rett (2008a: 192), ex. (89b)]

(88) a. Gary forgot [**how very high** the bathroom ceiling is].
b. Ethel forgot [**what a dork** Charles is].

(89) a. I found out [**where** Mary lived]. [resolutive]
 b. I found out [**what a lot of time** Mary had spent in Spain]. [exclamative]

(90) a. Fred knows [**how tall** John is]. [resolutive/exclamative]

(i) I know what stories Hubert tells. [Elliott (1974: 237), ex. (49)]
 (a) I know the kind of stories Hubert tells.
 (b) I know the improbable/odd/surprising nature of the stories Hubert tells.

b. Fred found out [**how fast** John can run].

[resolutive/exclamative]

[Grimshaw (1979: 282) (ex. (11))]

(91) a. How much remains to be done?

[interrogative]

b. How much remains to be done!

[exclamative]

[Huddleston (1994: 412)]

In fact, it was not until the work of Elliott (1971, 1974) and Grimshaw (1979) that the idea of an exclamative clause-type on a par with declarative and interrogative came to be established even for the root domain.³⁸ Elliott's (1974: 231) express goal was to illustrate that 'exclamatory sentences in English have unique semantic and syntactic properties', and thus should be considered a clause-type on a par with the declaratives, interrogatives and imperatives which had already been identified in the literature. More recently, Zanuttini & Portner (2003) provide detailed discussion of the syntactic, semantic and pragmatic properties of root exclamatives, and the (2008) edition of the *Catalan Journal of Linguistics* is dedicated to papers exploring exclamative syntax and semantics, showing that progress is being made in this regard.

Despite the fact that the existence of a root clause-type 'exclamative' is now considered 'uncontentious' (Huddleston 1993a: 176), exclamatives have nevertheless been neglected in comparison to the amount of attention in the literature, and prominence in the theory, which interrogatives have been afforded.^{39 40} Despite being recognised in the early accounts of exclamatives (Elliott 1971, 1974; Grimshaw 1979), embedded exclamatives have generally received even shorter shrift. As we will see below, many of the diagnostics given for distinguishing exclamatives from interrogatives are not applicable in the embedded domain. The term 'embedded *wh*-clause' is often tacitly taken to be equivalent to 'embedded interrogative clause', with no mention made of embedded exclamatives at all (e.g. Cheng 1991; Watanabe 1993).

³⁸ Although Elliott (1974: 231) credits Onions (1969) with identifying exclamations as one of four sentence types of English, alongside statements, commands/expressions of wish and questions.

³⁹ Huddleston is perhaps somewhat over-optimistic in his evaluation: for Allan (2006), for instance, '[e]xclamatives all occur as modifications of the other five clause-types', rather than constituting a clause-type in their own right.

⁴⁰ For Levinson (1983: 242 f.n. 11), for instance, exclamatives are part of the class of 'minor sentence types', in contrast to "the big three" of interrogative, imperative and declarative. In his cartographic investigation of the fine structure of the left periphery, Rizzi (1997: 260) makes clear that '[f]our kinds of elements typically occurring in the left periphery will be taken into account: interrogative and relative pronouns, topics and focalized elements', although the existence of exclamatives is acknowledged (Rizzi (1997: 262)). Note that other cartographic work has explored the position of exclamative expressions within the clausal left periphery, however (see e.g. Munaro & Obenauer 1999; Benincà 2001; Nye 2009; Munaro 2011).

Secondly, even amongst those who recognise the existence of embedded *wh*-exclamatives, there is a lack of consensus as to which finite complement clauses qualify as members of the class.⁴¹ The most controversial cases are those such as in (92), where the complement clauses occur under so-called ‘exclamatory’ predicates, such as *it’s amazing*. These are discussed at length in section 3.2.3.3 below, where I argue – in line with Huddleston (1993a) and Lahiri (2002), and against the view of Grimshaw (1979) and Zanuttini & Portner (2003) – that these are in fact resolute complements, with any exclamation-like sense to be attributed to the matrix predicate rather than to the complement clause.

3.2.3.1 Distinguishing interpretative properties of exclamatives

- (93) a. Fred knows [**how tall** John is]. [resolutive/exclamative]
 b. Fred found out [**how fast** John can run]. [resolutive/exclamative]
 [Grimshaw (1979: 282) (ex. (11))]

Furthermore, it is intuitively clear that for the sentences in (93) to be felicitously used, it is not sufficient for the property simply to hold, but it seemingly must hold to a ‘high degree’. If Fred knows how tall John is, on the exclamative reading Fred does not simply know that John is standardly tall as one might expect, but rather that it is noteworthy that John is particularly tall. Zanuttini & Portner (2003) characterise exclamatives as involving extreme values on a scale, whilst Rett (2008a, 2011) considers them to be degree constructions. Other accounts have rather placed a greater focus on exclamatives as involving an evaluation (Brander (2010), Nouwen & Chernilovskaya (2013)). Several accounts (Michaelis 2001, Chernilovskaya 2009) consider surprise on the part of the speaker at the propositional content expressed as a defining characteristic of exclamatives (although see Zanuttini & Portner (2003) for counter-arguments). Rett (2011: 411) rather characterises exclamatives as indicating ‘that a particular proposition has violated the speaker’s expectations’, which seems to pick up on Elliott’s (1974: 242) original claim that ‘[t]he ‘function’ of exclamations is clearly to talk about abnormal or unexpected situations; that is what they are *for*.’

The debate as to how best exclamatives should be characterised in semantic terms continues. What is crucial for my purposes is the fact that there is a consensus as to the fact that exclamatives have their own interpretation distinct from that of other finite complement clauses, however this is best to be characterised. Note that with the exception of Abels (2010), these accounts are primarily or exclusively concerned with characterising the interpretation of exclamatives in the root domain. Intuitively, the sense of an emotive speaker evaluation is reduced or lacking in (some) embedded exclamatives. For similar reasons, Rett (2008a, 2011) limits her conception of an exclamation to the root domain. Whilst recognising a type of finite embedded *wh*-clause distinct from an interrogative, Rett (2008a) argues that it is not correct to consider such clauses as exclamatives (see section 3.2.5 below for consideration of her idea that they may be free relatives). This depends to a large extent on how one characterises the class of exclamatives. Rett is primarily concerned with their semantics and pragmatics. When one also gives weight to their syntactic properties, there is a good case for applying the label ‘exclamative’ in the embedded domain, even if, like all embedded clauses, embedded exclamatives differ in certain regards to their root equivalents. This becomes clear when we consider the characteristic properties that distinguish exclamatives from other types of FCC. Even at the interpretive level, the property of presupposition and the intuition of high degree/exceptional value on a scale remain, ensuring that exclamatives are interpretively distinct from other finite embedded *wh*-clauses.

3.2.3.2 Distinguishing properties of exclamatives

Having determined that there are interpretive grounds for distinguishing a class of exclamative clausal complements, I show in this section that there are a number of structural

properties which characterise the relevant class in comparison to other finite complement clauses. Given the lack of diagnostics in the literature which are specific to the embedded domain, in what follows I discuss a range of differences posited primarily as distinguishing features of root exclamatives in comparison to root interrogatives, and evaluate their applicability in the embedded domain. In section 3.2.3.3, I put these diagnostics to work in clearing up the uncertainty concerning the correct classification of certain finite *wh*-clause complements in English, such as those in (92) above. To quote Elliott (1974: 325), '[i]t would not, of course, be necessary to provide the evidence [from the diagnostic tests] [...] were it not for the fact that the constructions we are dealing with are in so many cases superficially identical with questions.' As pointed out in the introduction to section 3.2.3 above, the confusion in the embedded domain is between embedded exclamatives and resolutive specifically, even though in those accounts which do not make the fine-grained distinction between types of interrogative complement clause that was motivated here in section 3.2.1 above, this is construed as being between 'exclamatives' and 'interrogatives'.

(A) Range of *wh*-expressions

One of the key diagnostics in differentiating exclamatives from resolutive - and at the same time, a recurrent source of confusion (see section 3.2.3.3 below) - concerns the *wh*-expressions which introduce them. It has long been recognised that the range of *wh*-expressions which can be used to introduce root exclamatives differs from the range of *wh*-expressions which introduces root interrogatives (Elliott 1971, 1974; Grimshaw 1979; Huddleston 1993a). One way in which this has been construed is that a more restricted range of *wh*-expressions can introduce exclamatives than interrogatives. Whilst both English exclamatives (95) and interrogatives (96) can involve *how* or *what*, interrogatives may additionally involve *wh*-expressions such as *where*, *who* and *which*, which are not available in exclamatives (cf. 95c,d,e vs. 96c,d,e) ^{42 43}.

⁴² Elliott (1974: 232) claims that although in his own judgement the examples in (i)-(iv) are 'on the very edge of grammaticality [...] there are other dialects of English in which they are grammatical'. He does not specify which varieties these are, however, and I have found no support elsewhere for this position. In my judgement, these are all ungrammatical, a judgement which is shared by Grimshaw (1979) and Huddleston (1993a), among others.

- (i) ?* Why he bought that coat!
- (ii) ?* Who you meet on the street!
- (iii) ?* Where our campus is located!
- (iv) ?* When they chose to get married! [Elliott (1974: 232), ex. (9)-(12)]

⁴³ As Elliott (1974: 243) observes 'in number of languages besides English, morphologically identical forms occur in both questions and exclamations'. This is a topic currently under investigation within the nanosyntactic framework by Michal Starke (2011, [p.c]). There is cross-linguistic variation in the range of *wh*-expressions permitted in exclamatives. Zanuttini & Portner (2003: 67) give the following example of an Italian *who*-exclamative (their (71a)). Note that the English translation rather involves a nominal exclamative.

- (i) Chi inviterebbe per sembrare importante!

- (95) a. **How fast** she ran!
 b. **What books** she wrote!
 c. * **Where** my sister decided to live!
 d. * **Who** Charles admired!
 e. * **Which (athlete)** he admired!
- (96) a. **How fast** did she run?
 b. **What books** did she write?
 c. **Where** did your sister decide to live?
 d. **Who** did Charles admire?
 e. **Which athlete** did he admire?

However, it is not in fact the case that the *wh*-expressions which introduce exclamatives simply form a sub-set of the *wh*-expressions which introduce interrogatives. As Huddleston (1993a: 176) notes, '[t]here are, moreover, differences between interrogative and exclamative *how/what*.' *Wh*-expressions of the sort *how* + adjective/adverb can occur in either exclamatives (97a) or interrogatives (98a), and both exclamatives and interrogatives can involve structures of the sort *what* + plural noun (cf. (97b) and (98b)). However, when it comes to *what* + singular noun, this requires the presence of the indefinite article *a* in exclamative cases (97c), and its absence in interrogative cases (98c). As Elliott (1974: 235) notes, *what a* exclamatives are 'not even identical *on the surface* with any independent or embedded questions type [his emphasis]'. The simple *wh*-expression *what* of interrogatives such as (98d) is similarly unavailable in exclamatives such as (97d).⁴⁴ In other words, whilst the same basic *wh*-expressions *how* and *what* are indeed put to use in both interrogatives and exclamatives, frequently they combine with different elements to form distinct *wh*-expressions characteristic of the two sorts of clause.⁴⁵ A more accurate characterisation of the situation would thus seem to be that the range of *wh*-expressions able to introduce English exclamatives is distinct from the range of *wh*-expressions which can introduce interrogatives, but that the former is not a sub-set of the latter.

who would-invite for to-seem important
 'The people he would invite to seem important!'

⁴⁴ As Lieven Danckaert [p.c] brings to my attention, to the extent that cases such as (i) are grammatical, these may be exceptions to the claim that there are no bare-*what* exclamatives. These structures require further investigation.

(i) What he has to put up with!

⁴⁵ On the basis of such patterns, Huddleston (1994: 419) claims that '[s]yntactically, the interrogative and exclamative uses of *what* are much more clearly differentiated than are those of *how*'. Indeed, many of the cases of ambiguity we will see involve *how*, as the illustrative examples presented above in (93) did - a situation complicated further when we take into account the additional class of finite *how*-clause complements introduced in Chapter 4.

- (97) a. **How fast** she ran!
 b. **What books** she wrote!
 c. **What *(a) book** she wrote!
 d. * **What** she wrote!
- (98) a. **How fast** did she run?
 b. **What books** did she write?
 c. **What (*a) book** did she write?
 d. **What** did she write?

Huddleston (1993a) observes further that although simple *how* is possible in both interrogatives and exclamatives, there are nevertheless distinctions between the two uses.⁴⁶ He claims that in the former, *how* is a manner adverb, whilst in the latter it is a degree adverb. This has consequences for the predicates that it may co-occur with. Whilst both manner and degree *how* can occur as an adjunct with predicates such as *enjoy* (cf. 99), interrogative *how* - with its manner reading - can be predicative whilst exclamative *how* cannot (cf. 100). Predicates such as *persuade*, which can naturally be modified by a manner adjunct but are not easily compatible with a degree adjunct, are felicitous in *how* interrogatives such as (101a), but not in *how* exclamatives such as (101b). We see the reverse pattern of this behaviour with *hate* in (102).

- (99) a. **How** did she enjoy it? [Huddleston (1994: 419-420)]
 b. **How** she enjoyed it!
- (100) a. **How** was it?
 b. * **How** it was!
- (101) a. **How** did he persuade them?
 b. # **How** he persuaded them!
- (102) a. # **How** did he hate them?
 b. **How** he hated them!

However, to say that simple *how* in exclamatives always receives a degree rather than a manner interpretation is something of an oversimplification. Certain root exclamatives, such as (103) seem to be ambiguous between a pure degree interpretation and a manner

⁴⁶ Elliott (1971: 15) already observed that *else* can accompany *how* (and other simple *wh*-expressions) in interrogatives (ia), but not in exclamatives (ib).

- (i) a. **How else** did he persuade them?
 b. * **How else** he hated them!

reading. Even more convincing evidence comes from the fact - to my knowledge, not previously observed - that it is also possible to have exclamatives as well as interrogatives with predicates which obligatorily select for a (manner) adverb, as we see in (104). Given the lack of attention paid to manner exclamatives in the literature (Milner (1974) and Rett (2008b) being notable exceptions), in what follows I discuss only the familiar degree exclamatives, leaving for future research the distinctions in interpretation, syntactic properties and distribution of manner exclamatives in the embedded domain.

(103) **How** she sung!

(104) a. **How** did she word the letter?
 b. **How** she worded the letter!

Thus, we see that whilst certain *wh*-expressions are unambiguously exclamative (*what a book, how very fast*) and others are unambiguously interrogative (*what book, how else*), yet others are ambiguous between the two readings (*how, how fast, what books*). In applying these observations to the task of distinguishing types of *wh*-clause in the embedded domain, we can therefore be confident that the FCC in (105) is an exclamative, because *wh*-expressions of the *what a N* type which introduce it are excluded from interrogatives, as we saw from (98) above. Conversely, we can say with confidence that (106) is an interrogative (and using the tests outlined in 3.2.1.3 above, we can narrow this down to being a resolute) on the basis of the ungrammaticality of *wh*-expressions of the *what N* type in root exclamatives, even though we know from the grammaticality of (105) that the predicate *forget* can in principle take exclamative complements. In many cases then, the form of the *wh*-expression is sufficient to allow us to distinguish embedded exclamatives from resolutives.⁴⁷ However, in cases such as (107), where the *wh*-expression is of a type available in both root interrogatives and exclamatives, we will have to rely on other diagnostics, discussed below, to determine in context whether we are dealing with an embedded exclamative or a resolute. As Huddleston (1993a: 178) observes, the very existence of ambiguity in cases such as (107) indicates that we are dealing with two distinct sorts of *wh*-clause.

(105) She'd forgotten [**what a fast runner** he was]. [exclamative]

(106) She'd forgotten [**what book** he wrote]. [resolute]

⁴⁷ *Whether*-clauses, although not the focus of the current work, are also possible as interrogative complements (both true interrogatives and resolutives), but not as exclamatives. Similarly, there are non-finite interrogative complements, but no non-finite exclamative complements. Non-finite clauses are beyond the scope of the present work, however.

(107) She'd forgotten [**how fast** he ran].

[exclamative/resolutive]

(B) Degree modifiers

An additional distinction concerning the *wh*-phrases found in exclamatives and interrogatives concerns the possibility for them to be modified by an intensifier such as *very*, *incredibly*, *extremely* or *unbelievably* (Elliott 1974: 234).⁴⁸ A *wh*-expression which permits such modification is unambiguously exclamative. Thus whilst, as noted above, *wh*-expressions of the form *how* + adjective/adverb e.g. *how fast* can occur in both exclamatives (108a) and interrogatives (109a), when this *wh*-phrase is modified by an intensifier, it is felicitous in an exclamative (108b) but not an interrogative (109b).⁴⁹ We see from (110a) that, unsurprisingly, true interrogative complements also disallow such intensified *wh*-expressions. Therefore we know from the grammaticality of (110b) that the complement must be an embedded exclamative, even though the matrix predicate in question is in principle capable of embedding resolutes too.

(108) a. **How fast** she ran!

b. **How very/incredibly/unbelievably fast** she ran!

(109) a. **How fast** did she run?

b. * **How very/incredibly/unbelievably fast** did she run?

(110) a. * She asked [**how very/incredibly/unbelievably fast** I had run].

b. She forgot [**how very/incredibly/unbelievably fast** I had run].

(C) Multiple *wh*

Another property which distinguishes exclamatives from interrogatives concerns not the nature of the *wh*-expression, but the ability for multiple *wh*-expressions to occur within a single clause. In the root domain, multiple *wh* is possible in interrogatives (111a) but not in exclamatives (111b). The same pattern holds also in the embedded domain: multiple *wh* is

⁴⁸ Or as Huddleston (1994: 420) puts it, 'exclamative *how* can modify another degree modifier'.

⁴⁹ More accurately, such interrogatives are excluded as neutral questions. They may be felicitous in contexts such as (i) where e.g. 'fast running' is already presupposed. The question then seems to acquire some kind of exclamatory flavour. I do not consider such cases here.

(i) A: She was home in less than 5 minutes!

B: Well how incredibly quickly did she run, then?

possible in both true interrogative (112a) and resolute (112b) complements, but not in exclamatives (112c).

- (111) a. **Who** bought **what**?
 b. * **What a nice suit who** bought!
- (112) a. I wonder [**who** bought **what**].
 b. Jan told me [**who** bought **what**].
 c. Jan told me [**what a nice suit who** bought]!

(D) Aggressively non-D-linked *wh*-expressions and NPIs

Elliott (1974: 234) notes the absence of both aggressively non-D-linked *wh*-expressions such as *wh-the hell* and more canonical cases of NPIs (*any, ever*) from embedded exclamatives (cf. 113a and 114a), in comparison with the corresponding interrogatives (cf. 113b and 114b). However, note that this is really only a contrast between exclamatives and true interrogatives.⁵⁰ As was discussed above in 3.2.1.3, resolutives pattern with exclamatives in disallowing *wh-the hell* as well as other negative polarity items. Elliott's 'interrogative' examples in (113)-(114) are precisely this - true interrogatives. Thus we already start to see the importance of making the kind of subtle distinctions which were motivated in sections 3.2.1 and 3.2.2.

- | | |
|---|--------------------------------|
| (113) a. * It's unbelievable [where the hell he is]. | [Elliott (1974: 234) ex. (34)] |
| b. I don't know [where the hell he is]. | [Elliott (1974: 234) ex. (33)] |
| (114) a. * It's fantastic [how Joe saves <u>any</u> money]. | [Elliott (1974: 234) ex. (26)] |
| b. I don't know [how Joe saves <u>any</u> money]. | [Elliott (1974: 234) ex. (25)] |

To complicate the picture further, it appears that the 'exclamative' examples Elliott (1974) provides by way of illustration are in fact resolutives - even without the offending polarity items, there are no root exclamatives equivalent to the embedded clauses in (113) and (114), whereas there are corresponding root interrogatives (see the discussion of *wh*-expressions in section (A) above). The misclassification stems from a misplaced belief, to be discussed further in 3.2.3.3 below, that all *wh*-complements to 'exclamatory predicates' (Elliott 1974: 232) such as *be unbelievable/fantastic* must be exclamatives.

⁵⁰ A likely source of the confusion is the fact that when it is not negated, the interrogative complements to *know* are resolutives rather than true interrogatives. See Chapter 4, section 4.4.1.3 for discussion of the influence of negation and other properties of the matrix clause on the types of complement the predicate permits.

Despite the unfortunate choice of illustrative examples, Elliott's main point holds: NPIs are excluded from exclamatives, including embedded exclamatives, as we can see from the examples in (115). Such examples meet our criterion for qualifying as unambiguous cases of exclamatives on the basis of the *wh*-expressions which introduce them, and are grammatical save for the presence of the NPI. This is indeed a point which distinguishes them from true interrogative complements, but one which they have in common with resolutives.

- (115) a. I found out [**what** (*the hell) **a fast runner** he is].
 b. I found out [**how very slowly** Joe saves (*any) money].

(E) Absence of SAI

Another clear cut difference between the examples given in (95) on the one hand, and those in (96) on the other, noted as far back as Elliott (1974: 233), concerns the absence vs. presence of subject-auxiliary inversion (SAI). In root *wh*-interrogatives involving a non-subject *wh*-phrase, SAI is obligatory (Huddleston 1993a: 176). Root exclamatives do not require SAI. However, SAI is not altogether excluded from root exclamatives, as discussed by Elliott (1974) and Huddleston (1994), whose examples of such patterns are given in (116) and (117) respectively. Huddleston (1994: 423) summarises the situation by saying that 'in the former [exclamatives] the triggering of inversion in main clauses is optional, in the latter [interrogatives] obligatory'. However, it is not clear that 'optionality' is really the most fitting description of what is going on in root exclamatives. Inversion in such clauses appears to be limited to certain varieties or registers of the language, and was already deemed 'distinctly archaic-sounding' by Elliott (1974: 233).⁵¹ Furthermore, inversion is not available in all root exclamatives, as Elliott's (1974: 233) example, given here in (118), illustrates. It is not clear what accounts for the contrast in acceptability between the ungrammatical example with SAI in (118), and the grammatical cases in (116) and (117), however. Interesting though this question is, it is beyond the scope of this work, which is concerned with the embedded domain, to which I now turn.

⁵¹ Note that even non-inverted full clausal exclamatives (cf. i) strike many native English speakers as at best restricted to a very high or literary register, and at worst as simply odd. Younger speakers in particular, at least in informal contexts, seem to prefer alternative exclamative strategies such as the elliptical structure in (iia), or what Nye (2009, 2011a) terms *how*-pseudo questions, that is to say structures such as (iib) which have the form of a *how*-interrogative, but the interpretation (close to that) of an exclamation (see brief discussion in Chapter 2, section 2.4.2).

- (i) How odd he is!
 (ii) a. How odd!
 b. How odd is he?!

(116) How beautiful is his wife! [Elliott (1974: 233), ex. (21)]

(117) a. What a row would there have been if they had realized you were here!
[Huddleston (1994: 422), ex. (21e)]

b. How very much better would it be if you went yourself!
[Huddleston (1994: 422), ex. (21f)]

(118) * What lovely teeth do you have, my dear!
[Elliott (1974: 233), ex. (22)]

The existence of root exclamatives with SAI alongside root interrogatives with SAI already complicates the use of SAI as a diagnostic test for exclamatives in root clauses. However, the real limitation of this test for our purposes here is that in embedded contexts, the contrast is neutralised. Like most root exclamatives, embedded exclamatives do not show SAI. Unlike root interrogatives, embedded interrogatives do not usually show SAI either. As discussed in section 3.2.1.3 above, only certain dialects allow SAI in true embedded interrogatives. The resolutes which are here contrasted with exclamatives never show SAI. Therefore absence of SAI is not a point of contrast between embedded exclamatives and resolutes. The string in (119b) with SAI is ungrammatical on either interpretation, whilst that in (119a) is ambiguous between both interpretations.⁵² Determining which interpretation is intended relies on context, or the application of further syntactic tests. Therefore we have seen that what has been presented in the literature as a key distinguishing feature between interrogatives and exclamatives, firstly may even in the root domain be neutralised, given that some exclamatives may show SAI, and secondly, never applies in the embedded domain.

(119) a. She told me [**how fast** she ran].
b. * She told me [**how fast** did she run].

(F) Appositive clauses

With regard to this diagnostic, the only elaboration given by Elliott (1974: 235) is that '[e]xclamations allow appositive clauses, but questions do not'. He provides the example presented below in (118a) by way of illustration of a case of grammatical apposition in an

⁵² Huddleston (1994) also discusses the ungrammaticality of SAI in embedded exclamatives, illustrating his point with the examples in (i):

(i) a. * I knew [**what a row** would there have been if they had realised you were here].
b. * She assured me [**how very much better** would it be if you did it yourself].
[Huddleston (1994: 422-3) ex. (23e,f)]

(120) a. It's incredible [what sort of house he lives in, a two-room shack].
b. It's incredible [what an enormous house he lives in, an actual palace].

(121) a. * I wonder [what sort of house he lives in, a two-room shack].
[Elliott (1974: 235), ex. (39, 40)]
b. Everyone knows [what sort of house he lives in, a two-room shack].
[Elliott (1974: 235 f.n. 8), ex. (i)]

The observation that sentential negation internal to an exclamative is impossible has been made by N. McCawley (1973) and Huddleston (1993b) amongst others.⁵³ Thus (122a) contrasts with the grammatical (122b) only in the presence of negation (and associated *do*-support). This seems equally to apply in the embedded domain, as we find the same contrast in (123).

(i) a. What no difference six years makes. [The Guardian, Money, 23.7.2011, p.4, col.5]
b. What a difference six years makes!

- (122) a. * **What a big house** he doesn't have!
 b. **What a big house** he has!

- (123) a. * She forgot [**what a big house** he doesn't have].
 b. She forgot [**what a big house** he has].

Leonarduzzi (2000: 471) suggests that the presence of negation in an embedded *wh*-clause is thus grounds enough to rule out the possibility that the clause in question is an exclamative. This seems to be correct, as is her conclusion that 'la négation à l'intérieur de la subordonnée indique que nous avons affaire à une interrogative' [*negation inside the subordinate clause indicates that we are dealing with an interrogative* [my translation - RCN]], at least whilst we are comparing only exclamative and interrogative clauses.⁵⁴ As the examples in (124) show, sentential negation is possible in embedded interrogatives: it is possible in both the true interrogative complement in (124a), and in the resolute in (124b), even if they perhaps require a little more pragmatic effort than the corresponding non-negated cases.⁵⁵ Thus at first sight Leonarduzzi (2000) seems correct in identifying the possibility of sentential negation as a differentiating factor for interrogatives and exclamatives.

- (124) a. I asked [**which of the books** Mary wouldn't be needing over the weekend].
 b. I have now found out [**which of the books** Mary won't be needing over the weekend].

Note, however, that it is certainly not the case that (all) interrogative complements clauses are compatible with sentential negation. Taking the basic examples of a true interrogative and a resolute that we have been using to date, repeated here in (125) and (126), we see that the addition of unstressed sentential negation renders both ungrammatical (or, at best, highly marked). Thus even if the possibility of negation in an embedded *wh*-clause indicates that we are dealing with an interrogative, an embedded *wh*-clause rendered ungrammatical by the addition of negation is not necessarily an exclamative.

- (125) a. I asked [**where** Mary lived]. [true interrogative]
 b. * I asked [**where** Mary didn't live].

- (126) a. I found out [**where** Mary lived]. [resolute]
 b. * I found out [**where** Mary didn't live].

⁵⁴ As will be demonstrated in Chapter 4, complementiser *how*-clauses may perfectly felicitously contain negation.

⁵⁵ These examples were constructed by Liliane Haegeman [p.c], to whom I am grateful for the observation that such cases of sentential negation in embedded interrogatives are felicitous.

Note further that there is something something exceptional about the particular example which Leonarduzzi (2000: 471) uses to illustrate the availability of negation in embedded interrogatives, repeated here in (127a). This is the fact that *not* does not seem to have negative force. Thus (125b), with *not* omitted, is truth-conditionally equivalent to (127a). This thus appears to be an instance of what has been termed expletive, or paratactic, negation (see Zanuttini & Portner 2000, Villalba 2004, Horn 2010). Note that expletive negation can also be found in exclamatives, at least in the root domain, as can be seen in (128a), which is more or less equivalent to (128b).

(127) a. If I give them cause to think themselves suspected, there's no knowing [**what obstacles** they may not throw in my way].

[Leonarduzzi (2000: 471), ex. (7)]

b. If I give them cause to think themselves suspected, there's no knowing [**what obstacles** they may throw in my way].

(128) a. **How often** have I not watched him!

[Horn (2010: 123), (ex. 13a)]

b. **How often** have I watched him!

It therefore appears that (the absence of) negation is not a reliable test for distinguishing exclamatives from other embedded *wh*-clauses. Standard sentential negation is excluded not only from exclamatives, but also from certain interrogatives (both true interrogatives and resolutives). Therefore the inability for an embedded *wh*-clause to be negated does not permit us to distinguish between the two. On the other hand, the presence of standard sentential negation in an embedded *wh*-clause is at least an indication that we are not dealing with an exclamation. Expletive negation, on the other hand, appears to be found in at least some kinds of exclamatives as well as interrogatives. As it is relatively understudied, and seemingly comparatively rare in English, I do not pursue its intricacies here further. More generally, given the complications, I put negation aside as a potential distinguishing property.

(H) Elliptical reduction (sluicing)

A final observation, also due to Leonarduzzi (2000: 473), is that in the embedded domain, 'l'ellipse n'est pas possible avec une exclamative (**He said how nice*)' [*ellipsis is not possible with an exclamative* [my translation- RCN]]. The type of ellipsis in question here is what Merchant (2004), following Ross (1969), terms sluicing: the ellipsis of the TP complement of a *wh*-expression (see Merchant (2004) for discussion of the precise conditions under which sluicing may obtain, and a formal implementation). We can see from examples such as (129) that this is possible in both true interrogatives and resolutives, so if it is true that it is excluded from exclamatives, then this is a point of contrast.

- (129) I knew he'd been buying a lot of books...
- a. ...so I asked why [~~he'd been buying a lot of books~~]. [true interrogative]
 - b. ...and I finally found out why [~~he'd been buying a lot of books~~].
[resolutive]

However, contra Leonarduzzi's (2000) claim, it is not clear that ellipsis is indeed excluded in exclamatives. Firstly, in the root domain, there are cases such as those given in (130) which might be taken to be sluiced exclamative *wh*-expressions.

- (130) a. What a surprise [~~it was to see him again~~]!
b. How (very) nice [~~that you came to visit~~]!

Secondly, the judgements for embedded clauses are disputed. In an observation he attributes to an unpublished manuscript by Chen (1997), Kim (1997: 181) - like Leonarduzzi (2000) - claims that 'while interrogatives support Sluicing [...] exclamatives do not.' However, the judgements given in his own paper, and reproduced in (131)-(133), seem to contradict this claim. They do not convey absolute ungrammaticality for sluicing in exclamatives - (132) actually seems to be deemed quite acceptable by at least some speakers. This seems to tie in with Ono's (2006) opposing claim that sluicing is grammatical in exclamatives. Note that the examples that Ono provides to support this claim, given here in (134) and (135), most resemble the more grammatical of the cases Kim (1997) provides.

- (131) She longs for summer. [Kim (1997: 181-2), ex. (44a)]
* It's amazing [how ~~she longs for summer~~].

- (132) Mary is really tall. [Kim (1997: 182), ex. (44b)]
√ /?? It's amazing [how tall ~~Mary is~~].

- (133) Mary is a trooper. [Kim (1997: 182), ex. (44d)]
??/* It's amazing what a trooper [~~Mary is~~].

- (134) John wrote an extremely long paper... [Ono (2006: 95), ex. (69)]
...and it's unbelievable what a long paper [~~John wrote~~].

- (135) John wrote an extremely long paper... [Ono (2006: 95), ex. (70)]
....and it's unbelievable how long (a paper) [~~John wrote~~].

Even from this brief discussion, it is clear that the topic of sluicing in English embedded exclamatives requires further study to determine the factors influencing its grammaticality in different contexts (why does (131) seem to be absolutely ungrammatical, whereas (132)

and (133) are not?). Given this, and the fact that only in a very limited set of cases will it be of relevance in determining between embedded *wh*-complement clauses in English, I do not pursue this issue here.

3.2.3.3 Exclamatives vs. interrogatives: summary

Having evaluated the behaviour of both root and embedded exclamatives and interrogatives with regard to the properties put forward in the literature to distinguish such clauses, three patterns emerge, reflected in the ordering of the properties in Table 5 below. The first four properties are those where the class of interrogatives as a whole (root interrogatives, true interrogative and resolute complements) diverges in behaviour from exclamatives (root and embedded). There is a set of *wh*-expressions common to exclamatives, and largely distinct from those found in interrogatives, which permit degree modification, which is impossible for the *wh*-expressions of neutral interrogatives. Multiple *wh* and standard negation are both excluded from exclamatives, but can occur in interrogatives, even if there are restrictions on the occurrence of negation in certain interrogatives.

Table 5 - Summary of the syntactic properties of exclamatives and interrogatives

		root exclamative	root interrog.	embedded exclamative	resolutive	true interrog.
	Properties - Set 1					
A	range of <i>wh</i> -expressions	specific structures involving <i>what (a)</i> , <i>how</i>	<i>what, who, where, when, how, why, which</i>	specific structures involving <i>what (a)</i> , <i>how</i>	<i>what, who. where, when, how, why, which</i>	<i>what, who. where, when, how, why, which</i>
B	degree modifiers	√	*	√	*	*
C	multiple <i>wh</i>	*	√	*	√	√

G	(i) standard negation	*	√ /*	*	√ /*	√ /*
	Properties - Set 2					
F	appositive clauses	√	*	√	√	*
D	aggressively non-D-linked <i>wh</i> -expressions and NPIs	*	√	*	*	√
E	SAI	%√ /*	√	*	*	%√
	Properties - Set 3					
G	(ii) expletive negation	√	?	?	√	?
H	Elliptical reduction (sluicing)	√	√	√ /*	√	√

If the first set of properties provide convincing grounds for establishing exclamatives as a distinct clause-type to interrogatives, then the second set of properties reinforce the necessity of distinguishing true interrogative and resolute complements, as was argued for at length in section 3.2.1 above. In allowing appositive clauses, and disallowing SAI, aggressively non-D-linked *wh*-expressions, and NPIs licensed from outside the clause, embedded exclamatives pattern alike with resolutives, to the exclusion of true interrogative complements and root interrogatives. Properties which constitute key differences between interrogatives and exclamatives in the root domain do not obtain between exclamatives and a particular sort of interrogative clause, resolutives, in the embedded domain. With regard to appositive clauses, aggressively non-D-linked *wh*-expressions and NPIs, root exclamatives show the same behaviour as embedded exclamatives. Only with regard to SAI is there a potential distinction, given that some root exclamatives - like root interrogatives and true interrogative complements - allow this. The third - and smallest - set of properties contains those where it is not clear that there is in fact a distinction in the behaviour of interrogatives and exclamatives at all. As noted above, the property of expletive negation is understudied, but given that examples were provided of its occurrence in both root exclamatives and resolute complements, its distribution cross-cuts the interrogative-exclamative divide. Elliptical reduction in exclamatives likewise requires further investigation, but given that at least some instances of its occurrence in embedded exclamatives are deemed grammatical, or only mildly degraded, it does not appear to constitute a consistent point of contrast with interrogatives.

The similarities in behaviour between embedded exclamatives and resolutive clauses mean that it is not always easy to distinguish the two. Of those tests which do appear to distinguish the two, many have limited applicability. For instance, whilst the range of *wh*-expressions available in exclamatives differs to that available in resolutive clauses, certain *wh*-expressions with the same surface form (e.g. *what books*, *how fast*) can occur in both, with the consequence that the two kinds of complement clause may be superficially identical. Similarly, the presence of degree modification of the *wh*-expression, whilst restricted to exclamatives, is an optional property which is by no means found in all exclamatives. Faced with the case of a *wh*-complement clause embedded under a predicate which permits both exclamative and resolutive complements (*find out*, *tell*, *forget...*) where the *wh*-expression is of ambiguous form (i.e. with no intensifying adverb and no NPI in the clause), there is then - to the best of my knowledge - nothing in the surface syntax to determine whether we are dealing with an exclamative or a resolutive clause.⁵⁶ It is at this point that interpretation comes in to play. In such ambiguous cases, we find two distinct readings, corresponding to an embedded exclamative and a resolutive. We saw in 3.2.3.1 above that exclamatives have their own distinct interpretation which, simplifying, involves presupposition of the proposition presented, and assertion that this holds to a high degree. So, where surface syntax does not help us, interpretation can guide us in distinguishing exclamatives from resolutive clauses. These diagnostics are put into practice in the following section, when I consider some disputed cases of embedded exclamative clauses.

3.2.3.4 Delimiting the class of embedded exclamatives

Thus far in section 3.2.3, it has been established that there are sufficient grounds for identifying a class of finite *wh*-complement clauses distinct from the true interrogatives and resolutive clauses discussed in section 3.2.1. These non-interrogative *wh*-complement clauses I termed embedded exclamatives, on the basis of properties they hold in common with root exclamatives. In the following sections, I demonstrate that some accounts attribute to the category ‘embedded exclamatives’ a broader range of complement clauses than rightfully belong there. I make use of the distinctive properties of exclamatives identified above to delimit the members of the class of embedded exclamatives.

3.2.3.4.1 Exclamative complements to ‘exclamatory predicates’

The misclassification of certain complement clauses as embedded exclamatives arises in part because of a tendency to over-generalise on the basis of examples such as (136). Here,

⁵⁶ Elliott (1974: 233) makes a similar point when he recognises that although he has argued the case for the existence of two different structures, ‘questions’ and ‘exclamations’ (in his terms), ‘[i]t is quite obvious, however, that those exclamations which contain WH-forms are in many cases similar or even identical to independent or embedded questions.’

the complement clauses can uncontroversially be identified as embedded exclamatives on the basis of the morpho-syntax of the *wh*-expressions which introduce them: *what a* and *how very*, both of which were shown in section 3.2.3.2 (A) above to be restricted to exclamatives.

- (136) a. Gary couldn't believe [**what a dork** Charles was].
 b. Ethel was surprised at [**how very fast** she ran].

[Based on Rett (2008a: 182), ex. (88) and (89)]

The embedded exclamatives in (136) are embedded under the matrix predicates *can't believe* and *be surprised at*. An assumption frequently made in the literature is that the *wh*-clauses in (137), embedded under the same matrix predicates, must similarly be embedded exclamative clauses (see Elliott 1974; Grimshaw 1979). This relies on the assumption that 'exclamatory predicates' such as *can't believe* and *be surprised at* - defined by Elliott (1974: 241) as the sub-set of Kiparsky & Kiparsky's (1971) emotive factives 'which are strictly "exclamatory" in the sense that they express particularly strong emotional responses' - must only be able to embed complements with an exclamative flavour.^{57 58}

- (137) a. Gary couldn't believe [**where** his sister had decided to live].
 b. Ethel was surprised at [**who** Charles admired].

Yet there is something immediately striking about the 'exclamative' complements in (137). They are introduced by the *wh*-expressions *where* and *who*. It was argued above that these *wh*-expressions are not able to introduce embedded *wh*-exclamatives, on the grounds that there are no root exclamatives introduced by these *wh*-expressions. Huddleston (1993a) raises precisely this issue in relation to such cases. If the embedded *wh*-clause complements in both (136) and (137) are exclamatives, why are there grammatical root exclamatives which correspond to only the embedded clauses in the former (cf. 138a,b), but not the latter (cf. 138c,d)?

- (138) a. **What a dork** Charles was!
 b. **How very fast** she ran!
 c. * **Where** his sister had decided to live!
 d. * **Who** Charles admired!

⁵⁷ For the purposes of the discussion here, I treat *can't believe* as a complex predicate, with distinct selectional preferences to simple *believe* (see Egré (2008: 3)). See Chapter 4, section 4.4.1.3 for discussion of the influence of matrix clause negation, modals etc. on the range of complement clauses a predicate can embed. Page numbers for Egré refer to the pre-publication manuscript version available to download from http://jeannicod.ccsd.cnrs.fr/ijn_00226386/fr/. Last accessed 17.09.2013.

⁵⁸ Lahiri (2002: 35) terms such predicates the "Predicates of Surprise".

In order to maintain the view that the embedded *wh*-clauses in (137) are exclamatives, one is forced into the unsatisfactory position of accepting that *where* and *who* can introduce embedded exclamatives but not root exclamatives. None of the authors who subscribe to such a view (Elliott 1974, Grimshaw 1979, Zanuttini & Portner 2003, Ono 2006) give an account as to why such a restriction should hold. As discussed in footnote 42, Elliott (1974: 232) claims that there are in fact speakers who do accept root exclamatives involving *where* and *who* (without providing supporting evidence, or details of the dialects or speakers for whom this is the case). He therefore does not dwell upon ‘the dubious status of these sentences’ (1974: 232) in his own grammar. Grimshaw (1979: 282 f.n.3) does consider root exclamatives involving *where* and *who* to be ungrammatical, but admits that ‘[t]he reason for this is not yet understood.’ Almost a quarter of a century later, Zanuttini & Portner (2003: 76) state openly that their ‘analysis of embedded exclamatives leaves open why non-E-only WH phrases [i.e. *wh*-phrases such as *where*, *when* and *who* which, unlike *how very* and *what a*, are not restricted to occurring in exclamatives - RCN] do not occur in root exclamatives’.

3.2.3.4.2 Resolutive complements to ‘exclamatory predicates’

There is an alternative and, I will argue, more appealing position to assuming that the range of *wh*-expressions which can introduce exclamatives differs in the root and embedded domains. Turning the issue on its head, Huddleston (1993a) argues that the same range of *wh*-expressions is found in both root and embedded exclamatives, and thus that the embedded clauses in (137) cannot be exclamatives, precisely because of the ungrammaticality of cases such as (138c) and (138d). He proposes that the *wh*-complements in (137) are rather resolutive. This classification immediately accounts for the acceptability of *wh*-expressions such as *where* and *who* in (137), and at the same time allows us to maintain the generalisation that the only *wh*-expressions acceptable in exclamatives, be they root or embedded, are *how (very)* (+A/Adv) and *what (a)* + N. The price to pay is that of accepting that predicates such as *can’t believe* and *be surprised at* are capable of embedding not only exclamatives, but also resolutive. In terms of the broader picture this seems plausible, when we consider that there are numerous other predicates which are able to embed both resolutive (cf. 139) and exclamatives (cf. 140). Thus the ability of *can’t believe* and *be surprised at* to accept both resolutive and exclamative complements would not be an idiosyncratic property of these two predicates. In fact, as will become clear in Chapter 5, when the distribution of FCCs in English is discussed in detail, resolutive and exclamatives consistently distribute alike.

- (139) a. Gary told me/forgot/discovered [**where** his sister had decided to live].
 b. Ethel told me/forgot/discovered [**who** Charles admired].

- (140) a. Gary told me/forgot/discovered [**how very high** the bathroom ceiling is].

b. Ethel told me/forgot/discovered [**what a dork** Charles is].

Applying an argument made by Huddleston (1993a: 178) to the data here, the examples in (139) in fact provide additional support for the position that the complement clauses in (137) are resolutive rather than exclamatives. The complement clauses in (139) have exactly the same form as those in (137). The matrix predicates in (139) are certainly capable of embedding exclamatives, as we see from the examples in (140). Therefore we would expect that the complement clauses in (139) are ambiguous between the two distinct interpretations associated with embedded interrogatives and embedded exclamatives, just as is the case for the complement clause in (141).⁵⁹ This is not the case however. There is no ambiguity in the examples in (139). There is no ‘high degree’ reading, or sense of surprise or unexpectedness, as would be expected from an exclamation, and as we do find in the cases in (140). The sole interpretation of the complement clauses is that of a resolute. And indeed, there is no debate concerning the classification of the *wh*-complement clauses in (139), despite them involving the very same string as the cases in (137). They are uncontroversially labelled resolutive.

(141) She told me [**how high** the ceiling is].

- (i) She told me the height of the ceiling (it turned out to be lower than most).
- (ii) She told me that the ceiling was incredibly high.

Thus as Huddleston (1993a: 178) notes, the ‘exclamative’ reading of embedded clauses introduced by *where* or *who* is not available under all exclamative-embedding predicates. In fact, an “exclamative” interpretation turns out to be available for *wh*-clauses introduced by *wh*-expressions such as *where* or *who* only when they are embedded under one of the ‘exclamatory predicates’. This strongly suggests that the source of any exclamative meaning associated with the examples in (137) is due to the matrix predicate itself, rather than to the complement clause. In other words, an “exclamative-like” interpretation can arise for resolutive complement clauses only under those predicates which lexically encode surprise/astonishment. This is consistent with the absence of any such interpretation for

⁵⁹ When the same complement is embedded under a predicate of surprise (cf. i), it appears that only the exclamative reading is available. For the reasons outlined above, I do not take this as support for the view that all *wh*-clause complements to such predicates are exclamatives, but consider that the lexical content of *be amazed* makes reading (ia) pragmatically implausible. Note that Huddleston (1993a: 180) claims that the interrogative reading is available but less salient because of the lexical content of the matrix predicate.

- (i) She was amazed at [**how high** the ceiling is].
 - (a) # She was amazed that the ceiling was only 6 foot high.
 - (b) She was amazed that the ceiling was incredibly high.

where- or *who-* complements to exclamative-embedding predicates which are not ‘exclamatory predicates’, such as those in (139).

Note further that ‘exclamatory predicates’ predicates such as *couldn’t believe* and *be surprised (at)* also take *that*-clause complements, as Elliott (1974: 241) acknowledges, and as we see from the examples in (142).⁶⁰ Yet it is not usually suggested that such complement clauses should be assimilated to exclamatives, or claimed that these are in any way different to other (factive) *that*-clauses simply because they receive some kind of “exclamative-like” flavour from the matrix predicate. My claim is that precisely the same holds for the *wh*-complement clauses illustrated in (137). Once we admit the idea that not all complements to ‘exclamatory predicates’ are necessarily exclamative, there is no need to assume this for the *wh*-complements in (137) either. In fact, the evidence brought together here strongly suggests that these are in fact resolutive. This allows us to maintain the view that there are no *where-* or *who*-exclamatives, root or embedded.

- (142) a. Gary couldn’t believe [**that** his sister still lived in Antwerp].
 b. Ethel was surprised [**that** Charles fervently admired Sheldon Cooper].

3.2.3.4.3 Challenges to viewing the complements to ‘exclamatory predicates’ as resolutive

Some apparent difficulties for the view that the *where-* and *who-*complement clauses to the ‘exclamatory predicates’ are in fact a sort of interrogative complement have been raised in the literature. I argue that none of these poses a serious challenge to the view put forward here.

The first piece of evidence put forward to challenge the view that the complements in cases such as (137) are interrogative rather than exclamative complements is their inability to license aggressively non-D-linked *wh*-expressions such as *wh-the hell* and NPIs. This is not actually problematic once we have distinguished resolutive from true embedded interrogatives, as I went to pains to do in section 3.2.1 above. Elliott (1971: 18-19; 1974: 234-235) interprets the impossibility of aggressively non-D-linked *wh*-expressions such as *wh-the hell*, and of NPIs in examples such as (143a) and (144a) as indicating that the complement clauses in question cannot be interrogatives, given that such expressions are possible in the corresponding interrogative clauses, (143a) and (144a), therefore concluding that these clauses must be exclamatives. Whilst in agreement that this behaviour does suggest that these clauses are not true interrogatives, exclamatives are not the only *wh*-

⁶⁰ And, pre-empting the discussion in Chapters 4 and 5, complementiser-like *how* clause complements (CHCs) too.

clauses where aggressively non-D-linked *wh*-expressions and NPIs are impossible. These are also ungrammatical in resolutes, as the discussion in 3.2.1.3 (E) above made clear. Thus this behaviour is equally consistent with my analysis of such clauses as resolutes, as it is with Elliott's view that they are exclamatives.

- (143) a. * It's unbelievable [**where the hell** he is].
 b. I don't know [**where the hell** he is].

- (144) a. * It's amazing [**what** you ever did for me].
 b. I'd like to know [**what** you ever did for me].

Another apparent argument in favour of treating the complements to 'exclamatory predicates' as exclamatives is discussed (and dismissed) by Lahiri (2002: 36) with the examples reproduced here in (145). *Whether*-clauses and *wh*-infinitives - indisputably interrogative complements (see footnote 47 above) - are impossible as the complement to such predicates. This is interpreted as indicating that such predicates do not accept interrogative complements more generally, and thus that the complements in (137) cannot be interrogatives, and thus must be exclamatives.

- (145) a. * It is amazing [**whether** John went to the party]. [Lahiri (2002: 36), 107a]
 b. * It is amazing [**what** to do]. [Lahiri (2002: 36), 107b]

There are several issues with this line of argumentation, however. Firstly, one cannot conclude on the basis of the ungrammaticality of *whether*-complements or non-finite interrogative clauses that the predicate in question is unable to embed interrogatives altogether. As has already been noted in the literature (by e.g. Huddleston (1993a: 179, 1994); Egré (2008)), polar interrogatives (i.e. *whether*-interrogatives) and *wh*-variable interrogatives are not identical in distribution. Huddleston (1994: 418) provides the examples in (146), to illustrate that the exclusion of *whether*-clause complements cannot be taken to indicate that the matrix predicate in question rejects interrogative complements more generally. Thus it cannot be concluded from the ungrammaticality of (145a) that no interrogative complements to *amazing* are possible. Such cases are discussed further in Chapter 5, section 5.3.2.4.4b. Similarly, Lahiri (2002: 36) argues that the ungrammaticality of (145b) does not constitute a counter-argument to the idea that the 'exclamatory predicates' embed interrogatives, for 'there exist predicates like *depend on*, which unquestionably take embedded interrogatives, but do not embed *wh*-infinitival interrogatives', as we see in (147). Thus neither the inability of a predicate to embed *whether*-clauses, nor of a predicate to embed non-finite interrogatives, can be taken as evidence that it rejects interrogative complements more generally.

- (146) a. She realized [why he was angry]. [Huddleston (1994: 418), ex. (16a)]
 b. * She realized [whether he was angry]. [Huddleston (1994: 418), ex. (16b)]

- (147) a. The answer depends on [**what** you want to do].
 b. *The answer depends on [**what** to do].

Even more convincing evidence that ‘exclamatory predicates’ such as *unbelievable*, *amazing* are compatible with interrogative complements comes from the fact that such predicates can perfectly felicitously embed *wh*-clauses introduced by *which* (cf. 148a), and those involving multiple *wh*-expressions (cf. 148b), seen in combination in (148c), as discussed by Lahiri (2002: 35).⁶¹ These properties were discussed in sub-sections (A) and (C) of section 3.2.3.2 above as hallmarks of interrogative clauses, which are excluded from exclamatives. Huddleston (1993a: 178) provides similar data in support of the same point. If *amazing* takes only exclamative complements, then it is not only the fact that *who* can occur which makes (149) surprising, but also the fact that *else* – which, as discussed in footnote 46, occurs in interrogatives but not exclamatives – is possible.

- (148) a. It is amazing [**which book** he chose].
 b. ? It is amazing [**who** does **what**]. [Lahiri (2002: 35), ex. (107e)]
 c. It is amazing [**which men** love **which women**]. [Lahiri (2002: 35), ex. (107f)]

- (149) It’s amazing [**who else** they invited].

The evidence amassed here indicates in general that ‘exclamatory predicates’ are capable of embedding interrogatives, more specifically, resolutives, and specifically that there is good reason to believe that the *wh*-complements in (137) are resolutives rather than exclamatives. There is no question as to whether these predicates are capable of embedding exclamatives – recall the examples in (136) – but crucially they are not restricted to embedding exclamatives. They permit other kind of finite *wh*-clause complement too. Nor is it disputed that the complements in (137) receive some kind of exclamatory flavour. But as this is also the case for the *that*-clause complements in (142), this is best attributed to the matrix predicate itself.

3.2.4 Resolutives vs. free relatives

The following two sections, which focus on clarifying the distinctions between types of complements which have been confused, differ from those discussed above in 3.2.1-3.2.3.

⁶¹ The judgement of (148b) as ‘?’ is that given by Lahiri (2002: 35). I find the example perfectly felicitous.

The concern of those sections was to distinguish two members of our typology of finite clausal complements, which due to certain similarities, often in surface form, have been confused or conflated in some previous accounts. In this and the following section, I rather distinguish a previously established member of our typology of finite clausal complements, resolutives and exclamatives respectively, from a structure which is taken to be quite different: the free relative (FR). The source of confusion between resolutives, exclamatives and FRs is nevertheless similar – it arises again because certain FRs have the same surface string as other clausal complements, as was already noted by Elliott (1974: 236).⁶² This is illustrated for resolutives by the examples in (150), to be discussed further in section 3.2.4.1 below. We see from (150c) that when embedded under certain predicates, a *wh*-complement may be ambiguous between a resolvable and a FR reading.

- | | |
|------------------------------------|----------------------------|
| (150) a. I devoured [what he ate]. | [eat + FR] |
| b. I don't care [what he ate]. | [not care + resolvable] |
| c. I discovered [what he ate]. | [discover + FR/resolvable] |

Despite this, there is a long tradition of differentiating finite *wh*-clausal complements from free relatives. The distinction between free relatives and resolutives was originally drawn along the lines of phrasal vs. sentential complements (Grimshaw (1977), Bresnan & Grimshaw (1978); see Leonarduzzi (2000) for an overview and discussion). Since the generalisation of X-bar structure to all projections, however (see e.g. Stowell 1981), clauses are XPs (i.e. phrasal), just as FRs are. Thus, under current theoretical assumptions, the original phrasal vs. sentential contrast cannot be maintained in any syntactically relevant sense. Nevertheless, most authors still consider free relative complements to differ structurally from the true interrogatives, resolutives, exclamatives and *that*-clauses discussed above. The significant syntactic distinction between FRs and such complement clauses is taken to be the particular kind of XP that they instantiate: simplifying somewhat, the complement clauses discussed above are generally taken to be CPs, whereas FR object complements to matrix predicates are taken to be DPs (see for instance Groos & van

⁶² '[T]here is at least one other construction [besides 'question'] which is on the surface identical with some exclamations, viz., 'free relatives'.

Riemsdijk (1981)).⁶³ That is to say, the contrast is now construed as being between nominal free relatives and clausal complements.⁶⁴

3.2.4.1 Resolutives vs. free relatives - the source of the confusion

If FCCs are CPs whilst FRs are DPs, it may be expected that FRs and clausal complements can be differentiated even when they have the same surface form. In cases such as those in (151) there can be little doubt that, despite the same surface string being involved in both cases, *what he ate* is a FR under *devour* in (151a) and a resolute under *not care* in (151b). This is because we can independently establish that *devour* takes nominal but not clausal complements (152), whilst *not care* conversely permits clausal but not nominal complements (153) (see footnote 33 above for discussion of the behaviour of *not care*).⁶⁵

- | | |
|---|-------------------------------|
| (151) a. I devoured [DP what he ate]. | [<i>devour</i> + FR] |
| b. I don't care [CP what he ate]. | [<i>not care</i> + resolute] |
| | |
| (152) a. I devoured [DP the food]. | [<i>devour</i> + DP] |
| b. I devoured [DP the things that he was saying]. | [<i>devour</i> + DP] |
| c. * I devoured [CP why he wanted to eat sushi]. | [* <i>devour</i> + CP] |
| d. * I devoured [CP that he wanted to eat sushi]. | [* <i>devour</i> + CP] |
| | |
| (153) a. * I don't care [DP the food]. | [* <i>not care</i> + DP] |

⁶³ Rooryck (1994) is an exception: his is the only account of which I am aware which explicitly argues for a CP analysis of object complement FRs. FRs can serve as adjuncts as well as arguments (see e.g. Izvorski (2000)), and in this function have been claimed to be able to occur as adjectival, adverbial and prepositional phrases, as well as noun phrases (van Riemsdijk (2006)). Larson (1987) argues however that all English FRs reduce to the categories NP or AP, whilst Caponigro and Pearl (2009) distinguish between NP and PP FRs alone. A full typology of free relatives is beyond the scope of the current work.

⁶⁴ Although there are a considerable number of accounts which propose nominal analyses for various kinds of apparently clausal complements. The most famous of these is perhaps Kiparsky & Kiparsky's (1971) treatment of factive *that*-clauses as clauses introduced by a null nominal variant of *the fact*. Note further that whilst for *wh*-complement clauses there is a near consensus in the literature that the *wh*-expressions which introduce them occupy spec-CP, or a specifier within CP in cartographic approaches (although see e.g. Bayer & Brandner (2008) for the suggestion that certain short *wh*-expressions are C heads), there has been much debate for FRs as to whether the *wh*-expression similarly occupies spec-CP, or rather is itself the D head of the FR. See Groos & van Riemsdijk (1981) for a thorough overview and evaluation of these two positions. More recently, Cecchetto & Donati (2011) have proposed that FRs and interrogative complement clauses are derived from fundamentally the same structure. Internal *wh*-movement of a simple *wh*-expression in a phrase such as *what you read* gives rise to a 'labelling conflict' (Cecchetto & Donati (2011: 523)). If the *wh*-item provides the label for the whole structure, the result is a DP free relative. If the C head provides the label, the result is a CP embedded interrogative.

⁶⁵ I use *why* in the interrogative CP complements to favour a resolute (as opposed to FR) reading. As discussed in section 3.2.4.2 below, *why* is one of several *wh*-expressions which is found in resolutives, but rarely occurs in FRs.

- | | |
|---|------------------|
| b. * I don't care [DP the things that he was saying]. | [*not care + DP] |
| c. I don't care [CP why he wanted to eat sushi]. | [not care + CP] |
| d. I don't care [CP that he wanted to eat sushi]. | [not care + CP] |

However, one does not have to delve far into the literature to see that it is not always the case that FRs and clausal complements can easily be differentiated. There is much confusion, particularly when it comes to telling apart resolutes and FRs.⁶⁶ The most extreme position is that taken by Rooryck (1994) and Turnbull-Sailor (2007), who claim respectively that 'FRs are structurally identical to indirect *wh*-clauses' (Rooryck 1994: 198), and that 'the complements of *discover*-class verbs are free relative clauses contained in DPs' (Turnbull-Sailor 2007: 48). In other words, for these authors there is no distinction between resolutes and FRs. The most significant factor leading to such conflation, in conjunction with the surface similarity FRs can show to resolutes, is the fact that their distribution is very similar. Whilst there are predicates which, like *devour* and *not care*, take only nominal or only clausal complements respectively (*give* and *depend*, respectively, for instance), there is a large class of predicates which are able to embed both: *discover*, *know*, *forget*, for instance (cf. 154). This gives them the potential to embed both FRs and resolutes (155). In such cases, where we have a FR and a resolute with the same surface form embedded under the same matrix predicate, we shall have to appeal to factors other than distribution to distinguish between the two.

- | | |
|--|-----------------------|
| (154) a. I discovered [DP the food]. | [discover + DP] |
| b. I discovered [CP why he wanted to eat sushi]. | [discover + CP] |
| (155) a. I discovered [DP what he ate]. | [discover + FR] |
| b. I discovered [CP what he ate]. | [discover + resolute] |

One distinguishing factor, and the most convincing argument against equating the resolute and FR complements to predicates such as *discover*, is precisely the fact that we have ambiguity in (155) and (156). Like (155), (156) is ambiguous between two distinct

⁶⁶ Although the confusion is not strictly limited to resolutes and FRs. As discussed below in section 3.2.5, it has also been suggested that embedded exclamatives may in fact be FRs, a view which I argue against. Furthermore, it has been noted that there are also cases of ambiguity between true interrogative complements and FRs, as in example (i), given by Quirk et al (1985: 1061). That such cases are rarer than comparable cases involving resolutes and FRs is unsurprising, given the generally more limited possibilities for DP complementation with those predicates which embed true interrogatives such as *ask*, *wonder* than those which embed resolutes, such as *forget*, *discover*.

- | | |
|--|----------------------------|
| (i) They asked me [what I knew]. | [Quirk et al (1985: 1061)] |
| a. They asked me what information I possessed. | [resolute] |
| b. They asked me things that I knew (my own name, today's date). | [free relative] |

interpretations, one corresponding to a resolutive and the other to a free relative (see Munsat (1986); Huddleston & Pullum (2002) for similar examples).⁶⁷ On the resolutive reading, the object of discovery is a proposition: that Jo had discovered a new planet, for instance. On the free relative reading, the object of discovery is an entity - Jo and I both discovered the same planet. As the two readings are distinct, this militates against assimilating the former to the latter (as Rooryck (1994) and Turnbull-Sailor (2007) propose).⁶⁸

- (156) I discovered [what Jo discovered].
- (i) I discovered the identity of the thing that Jo discovered. [resolutive]
 - (ii) Jo discovered something and I discovered that same thing. [free relative]

Confirmation that the ambiguity in (156) is to be attributed to the possibility of occurrence of two distinct complement types to *discover* comes from the fact that with predicates which permit clausal but not nominal complements (e.g. *not care*, (157)), only the first reading is available. With predicates which permit nominal but not clausal readings (e.g. *devour*, (158)), only the second reading is available. Keeping in mind my commitment to a strong version of compositionality (see Chapter 2, section 2.5.1), the availability of two distinct interpretations for the same surface string (especially when both can be found under the same matrix predicate (156)) is taken to reflect two distinct underlying syntactic representations for the complement clause. There are numerous additional differences between resolitives and FRs which have been noted in the literature, which I synthesise and evaluate in the following section, and which argue in favour of keeping the two classes apart.

- (157) I don't care [what Jo discovered].
- (i) I don't care about the identity of the thing that Jo discovered. [resolutive]
 - (ii) * Jo discovered something and I don't care about that same thing. [* free relative]

- (158) I devoured [what Jo discovered].
- (i) * I devoured the identity of the things Jo discovered. [* resolutive]

⁶⁷ Elliott (1974: 236) provides similarly ambiguous cases, but where the *wh*-clause is in subject rather than complement position. He in fact cites these as a case of ambiguity between exclamatives and free relatives, but this is due to the mistaken belief that all *wh*-complements to 'exclamatory' predicates such as *fantastic* are exclamatives. See section 3.2.3.4 above for discussion of this point.

- (i) [Where they went on their vacation] is fantastic.
 - (a) That they went where they went on their vacation is fantastic. [resolutive]
 - (b) The place where they went on their vacation is fantastic. [free relative]

⁶⁸ Gary Thoms [p.c] suggests that this ambiguity may rather reflect two different readings of a free relative under an intensional predicate. Pending further investigation, I continue to construe this distinction in the traditional terms of a DP (free relative) vs. CP (resolutive) reading familiar from the literature.

- (ii) Jo discovered something and I devoured that same thing. [free relative]

It should be noted that many of the tests which are claimed to distinguish ‘interrogatives’ from free relatives in fact only set apart true interrogatives and free relatives, whilst resolutes and FRs in fact pattern alike. For instance, neither FRs nor resolutes allow SAI in any variety of English known to me (cf. 159), nor can aggressively non-D-linked *wh*-expressions be licensed (160) in either of these embedded clause-types, as demonstrated below for the uncontroversial cases of a FR under *devour* and a resolute under *not care*. The need for additional diagnostics to differentiate FRs and resolutes is thus clear.

- (159) a. * I devoured [_{DP} what did you eat]. [* FR with SAI]
 b. * I don’t care [_{CP} what did you eat]. [* resolute with SAI]
- (160) a. * I devoured [_{DP} what the hell you ate]. [* FR with *wh-the hell*]
 b. * I don’t care [_{CP} what the hell you ate]. [* resolute with *wh-the hell*]

3.2.4.2 Distinguishing resolutes and free relatives

(A) Range of *wh*-expressions

It is by no means uncontroversial to claim, as I do here, that the range of possible *wh*-expressions is a potential diagnostic for distinguishing FRs from resolutes. It has been claimed (by Rooryck 1994, Huddleston & Pullum (2002) for instance) that the same set of *wh*-words is involved in both FRs and embedded interrogatives, in contrast to headed relative clauses, which are claimed to involve a different range of *wh*-expressions. This claim has been made both for specific languages (of greatest relevance to us here, English), but also as a cross-linguistic generalisation.⁶⁹

⁶⁹ See for instance Caponigro (2002: 143-144), who claims that in the Indo-European language family, one finds languages such as English where more or less same set of *wh*-words is used to introduce FRs, headed relative clauses and interrogatives, and languages such as German and Italian where *wh*-words introduce interrogatives and FRs but not headed relatives, as the paradigm given in (i) illustrates for German, yet you never find languages where *wh*-expressions introduce headed relative clauses and interrogatives, but different elements introducing FRs. Starke (2013) takes a nanosyntactic approach to these facts. It is clear from the discussion above that even if there is a general tendency cross-linguistically for the *wh*-expressions used in FRs to resemble those used in interrogatives, at the level of individual *wh*-expressions in individual languages, there are differences which require us to differentiate between the two.

- (i) a. Peter fragte [**wen** ich vorziehe]. [interrogative – *w*-form]
 Peter asked whom I prefer.
 b. Peter hasst [den Mann [**den** ich vorziehe]]. [headed relative– *d*-form]
 Peter hates the man whom I prefer.
 c. Peter hasst [**wen** ich vorziehe]. [free relative – *w*-form]

Starting with the situation in English, it is certainly the case that there are some *wh*-expressions which occur in both free relatives and embedded interrogatives (bearing in mind from 3.2.1.3 above that in English the same range of *wh*-expressions can be found in both resolute and true interrogative complements) but not in headed relatives. One such example is *what*, which we saw from the examples in (156)-(159) could introduce both FRs and resolutives, yet which in Standard English cannot be used as a relative pronoun.⁷⁰

- (161) a. She can marry [who(ever)/whom(ever) she pleases].
b. You can take [which(ever) you like]. [Quirk *et al* (1985: 1057) (b)]
- (162) a. You're not [who I thought you were]. [Quirk *et al* (1985: 1056-7),(c)]
b. That's [how long it takes].
c. That's [why I don't go there anymore].
- (163) a. Lily loathes [how all thieves work] - secretly.
[Caponigro & Pearl (2009: 156) ex. (3a)]
b. Jack works [how all thieves work] - secretly.
[Caponigro & Pearl (2009: 156) ex. (3b)]

Peter hates whom(ever) I prefer.

(i) I imagine this is how members of the Cruising Fraternity feel on their first night on either their P&O or Fred Olsen boat. Though I don't expect their wine would be as good as [the one **what** we had].
From <http://www.caravanclub.co.uk/community/your-stories/mrpip50/THE-MOTORVAN-DIARIES-Part-one/rb/288713/>. Last accessed 21.01.2013.

‘simple’ FRs discussed to date, there are also a range of *-ever* forms which can occur in FRs but not in interrogatives or relative clauses (Huddleston & Pullum (2002), van Riemsdijk (2006: 360)). Exploring the syntactic and semantic differences between ‘ordinary’ and *-ever* FRs is beyond the scope of the discussion here, but see e.g. Izvorski (2000) for discussion. The crucial point to note is that an example such as (164) is not ambiguous in the way that (156), repeated below as (165), is. The only reading available is the free relative interpretation.⁷¹

(164) I discovered [whatever Jo discovered].

(165) I discovered [what Jo discovered].

Conversely, there are certain *wh*-expressions which can occur in resolutives (and in true interrogatives), but not in either FRs or headed relative clauses. One such case discussed in the literature is that of complex *wh*-expressions. Van Riemsdijk (2006: 374 f.n. 23) claims that ‘in Dutch and German, for example, only simplex *wh*-expressions (e.g. *wat* ‘what’) can introduce an FR’, as is illustrated in the Dutch examples in (166), provided by van Craenenbroeck (2010: 250).⁷² Interrogatives can be introduced not only by simplex *wh*-expressions, but also by complex *wh*-phrases such as *welk boek* ‘which book’ as the examples in (167) - constructed to parallel those in (166) - show.

- (166) a. [**Wat** op tafel ligt]is voor jou. [van Craenenbroeck (2004: 42), ex. (70)]
 what on table lies is for you
 ‘What lies on the table is for you.’
 b. * [**Welk boek** op tafel ligt]is voor jou.
 which book on table lies is for you.

- (167) a. **Wat** ligt op tafel?
 what lies on table
 ‘What lies on the table?’
 b. **Welk boek** ligt op tafel?

⁷¹ There is potential for confusion between the FR *-ever* forms such as *whoever*, and simple (interrogative) expressions such as *who* co-occurring with NPI *ever*, as in (i) (Quirk *et al* 1985: 1061). The two are distinguished orthographically - the former is written as one word, the latter as two - as well as interpretively and distributively. Interrogative *who* + *ever* patterns like the other aggressively non-D-linked *wh*-expressions discussed above in sections 3.2.1.3 (E) and 3.2.3.2 (D) (cf. ii).

(i) I can’t imagine [who ever would marry him].
 (ii) I can’t imagine [who the hell would marry him].

⁷² Van Craenenbroeck (2004: 43 f.n. 62) is careful to note that this restriction applies only to ‘the definite usage of free relatives, i.e. those free relatives which can be paraphrased by means of a definite expression. In their universal reading, free relatives are compatible with complex *wh*-phrases’. Van Riemsdijk (2006) observes the same.

Which book lies on table
'Which books lies on the table?'

The same also seems to hold for English. (168) has only a resolutive interpretation. However, the simplex/complex *wh*-expression distinction is too coarse to capture the empirical facts: the restriction against *wh*-phrases occurring in (ordinary) FRs is not absolute. As Quirk *et al* (1985: 1060) note, phrasal *wh*-expressions are possible with what they term a paucal reading, suggesting a limited quantity, as in the example in (169). Note that '*what little N*' is excluded from all interrogatives, as (170) shows, so there can be no confusion in such cases.⁷³

- (168) I discovered [**which treasure** Jo had discovered].
(i) I discovered the identity of the treasure that Jo discovered. [resolutive]
(ii) * Jo discovered a certain horde of treasure and I discovered that same treasure. [FR]
- (169) I gave him [**what little money** I had to spare]. [FR]
- (170) a. * **What little money** does he have to spare? [root interrogative]
b. * I wondered [**what little money** he had to spare]. [true interrogative]
c. * I don't care [**what little money** he had to spare]. [resolutive]

A similar case, not previously noted in the literature (with the exception of Nye 2011b,c), involves the complex *wh*-expression *whereabouts* which, as the examples in (171) illustrate, can occur in interrogatives of all types, but cannot occur in FRs. An example such as (172) can thus only be interpreted as a resolutive, despite the fact that *discover* does in principle accept FR complements.

- (171) a. Whereabouts does he live? [root interrogative]
b. I asked [whereabouts he lived]. [true interrogative]
c. I found out [whereabouts he lived]. [resolutive]
d. * I lived [whereabouts he lived]. [free relative]
- (172) I discovered [whereabouts he lived].

As a diagnostic, considering the *wh*-expression which introduces a complement reduces the potential number of ambiguous cases: if the complement is introduced by *whereabouts*, for instance, we can be sure that we are not dealing with a FR, and clauses introduced by *whom*,

⁷³ Note that '*what little N*' is possible in exclamatives, however, as illustrated in (i). I return to the issue of differentiating exclamatives and free relatives in section 3.2.5 below.

(i) What little money he has to spare!

whose, which, why and most complex *wh*-expressions are unlikely to be FRs. Conversely, with a (non-NPI) *wh-ever* expression introducing the complement, we can say with confidence that what we have is a FR, and *what little X* similarly rules out a possible interrogative interpretation. However, under a predicate which permits both CP and DP complements, this give us no assistance in determining whether a complement introduced by *what, where, when* or - contra Quirk *et al* (1985) - *how* is a FR or a resoluteive. For such cases, we need to consider further diagnostics.

(B) Clefting of the *wh*-phrase

Since as far back as Baker (1970), clefting of the *wh*-phrase has been taken as a diagnostic which can be used to distinguish embedded interrogatives from FRs. The claim is that the *wh*-phrase of an embedded interrogative (true interrogative or resolute) can be clefted, whereas that of a FR cannot. This is illustrated below in (174), making use of our paradigm cases of a FR and of a resolute from (151), repeated below in (173). Thus (175b) has none of the ambiguity of (175a) (see (156) above for discussion of this ambiguity): the only reading available for (175b) is the resolute reading whereby the matrix clause and embedded clause subjects discovered separate things.

- (173) a. I ate [_{DP} what he ate]. [*eat* + FR]
 b. I don't care [_{CP} what he ate]. [*not care* + resoluteive]
- (174) a. * I ate [_{DP} what it was that he ate]. [* FR with clefted *wh*-phrase]
 b. I don't care [_{CP} what it was that he ate]. [resoluteive with clefted *wh*-phrase]
- (175) a. I discovered [what Jo discovered]
 b. I discovered [what it was that Jo discovered].

Nevertheless, there do seem to be counter-examples to the claim that the *wh*-phrase of a FR cannot be clefted: cases of ‘ordinary’ FRs, in which the *wh*-phrases appear in clefted form, which are apparently equivalent in interpretation to the corresponding FRs with non-clefted *wh*-phrases, as illustrated by the attested examples in (176).⁷⁴ Again, interesting though the issue is of what makes cases such as the (attested) examples in (176) grammatical, whilst

⁷⁴ The *wh*-expressions of *-ever* FRs can also be clefted, although seemingly only on the ‘indifference’ reading, not on the ‘ignorance’ reading (see Tredinnick (2005) on the distinction between the two).

- (i) a. * [What it was that she cooked] was eaten grudgingly.
 b. [Whatever it was that she cooked] was eaten grudgingly.
- (ii) a. * I'll read [what it is that she's writing].
 b. I'll read [whatever it is that she's writing].

(174a) for instance is ungrammatical, it is one which falls beyond the scope of the present work. In relation to my goal here, the conclusion is that whilst it appears that in many cases clefting of the *wh*-phrase can serve as a test to distinguish FRs and relatives, it needs to be applied with caution, as there are apparent, and poorly-understood, exceptions.

- (176) a. I ate [what it was that I wanted] without eating more than I needed.⁷⁵
 b. I figured Klaus would let it go if I gave him [what it was he wanted].⁷⁶

(C) Finiteness

As this work is concerned only with finite complement clauses in English, finiteness as a distinguishing factor between FRs and resolutes will be touched upon only briefly, for the sake of being comprehensive in reporting the distinctions noted in the literature. It is generally claimed that, at least in English, there are no non-finite free relatives, as the contrast in (177) is intended to illustrate. *Give*, which like *eat* takes DP but not CP complements, is grammatical with a finite (177a), but not a non-finite (177b), FR complement.⁷⁷

- (177) a. I'll give him [what(ever) he wants to play with].
 b. * I'll give him [what(ever) to play with].

Cecchetto & Donati (2011: 555) are the exceptions in claiming that non-finite FRs are in fact possible. The generalisation that they make is that 'ordinary' free relatives can be non-finite, whilst *-ever* FRs, like their Italian equivalents with *-unque*, cannot. They illustrate their point with the examples in (178) below.

- (178) a. I found out [what to read]. [Cecchetto & Donati (2011: 555) ex. (115)]
 b. * I found out [whatever (book) to read].

Given that *find out* is a predicate which accepts only a very limited range of DP complements (see discussion in footnote 33), and yet which readily accepts CP complements, it seems much more plausible, however, that the non-finite clause in (178a)

⁷⁵ From <http://henrykh.wordpress.com/2009/02/>. Last accessed 21.01.2013.

⁷⁶ From <http://drownedinsound.com/community/boards/social/4270918>. Last accessed 21.01.2013

⁷⁷ Or, more precisely, (177b) is ungrammatical on the relevant reading. If the string involves *-ever*, it is grammatical, but on the 'indifference' reading mentioned in the discussion of clefting in footnote 74 above (see Tredinnick (2005)).

is in fact a non-finite resolute, rather than a non-finite FR.⁷⁸ Supporting evidence comes from the fact that paradigm cases of DP- (and hence, FR-) accepting predicates, such as *eat*, also reject the non-finite *wh*-complements. Whilst not absolutely conclusive, the empirical facts are certainly compatible with the generalisation which has been made for English, to the effect that there are non-finite resolutives (and true interrogatives) but no non-finite FRs, contra Cecchetto & Donati (2011). Whilst, as stated above, the focus here is not upon finite complement clauses, it is nevertheless interesting to note that the same confusion concerning the status of a complement clause as a FR or as a resolute holds equally for non-finite clausal complements.

(179) * I ate [what to eat].

[*eat* + non-finite *wh*-complement]

(D) Pied-piping

A further distinction between FRs and resolutives concerns the possibility of pied-piping a preposition along with the *wh*-expression (Huddleston and Pullum 2002: 1069). In both FRs and resolutives the option is available to front the *wh*-expression alone, stranding the preposition (180a, 181a), but only in the case of resolutives is it additionally possible for the *wh*-expression to pied-pipe the preposition along with it, as we see from the contrast between (181b) and (180b).^{79 80} Therefore in a case such as (182) we can be sure that what we have is a resolute complement rather than a FR, which is corroborated by the fact that

⁷⁸ Our usual case of a predicate which permits *wh*-clause complements but not DPs, *not care*, in this case proves unenlightening, as with a non-finite *wh*-complement it is ungrammatical (cf. i). The fact that non-finite interrogative complements differ in distribution from finite interrogative complements was already noted above in section 3.2.3.4.3. Given the ability of *not care* to take finite resolute complements but not DPs, this may at first sight seem more in line with Cecchetto & Donati's (2011) view than my own. Note, however, that there appears to be an independent restriction against non-finite *wh*-clauses occurring as complement to *not care*, as the contrast in (ii) illustrates. As the complement clauses in these cases are introduced by the interrogative-only *wh*-expression *which*, we can be sure that we are not dealing with FRs. Given that *not care* rejects both FR complements and non-finite *wh*-clause complements, we can draw no conclusions about the status of the complement clause in (178a) on the basis of the ungrammaticality of (i).

(i) * I don't care [what to eat].

(ii) a. * I don't care [which to eat].

b. I don't care [which you eat].

⁷⁹ See such attested examples as:

(i) I DON'T CARE TO WHOM GLASGOW BELONGS From <http://skidmoresisland.blogspot.be/2012/01/i-dont-care-who-glasgow-belongs-to.html>. Last accessed 22.02.2012.

⁸⁰ As Huddleston and Pullum (2002: 1069) note, FRs also differ from headed relative clauses in this regard. Headed relative clauses, like embedded interrogatives, allow both preposition stranding (cf. i) and pied-piping (cf. ii).

(i) [The city [which she referred to]] was Riga.

(ii) [The city [to which she referred]] was Riga.

the only interpretation available in this case is that of a resolutive interrogative, where what is discovered and what the embedded subject was referring to are not the same.

- (180) a. [**What** she was referring **to**] was Riga.
[modelled on Huddleston & Pullum (2002: 1069), ex. (7ia, 7iia)]
b.* [**To what** she was referring] was Riga.
- (181) a. I don't care [**what** she was referring **to**].
b. I don't care [**to what** she was referring].
- (182) I discovered [**to what** she was referring].

(E) Multiple wh

One characteristic feature of interrogatives (both root and embedded) is the availability of multiple *wh*-expressions within a single clause, as was noted above in section 3.2.3.2 (C), and as illustrated by the root interrogative in (183). Taking the grammatical examples of a FR and a resolute given in (184) as a baseline, we see from the contrast with (185), making the minimal alteration of replacing the object of the embedded verb *please* with a *wh*-expression, that the outcome is grammatical in the case of the resolute (185b) but not the FR (185a). Thus resolutives pattern with other interrogatives in permitting multiple *wh*, whilst FRs pattern with headed relatives, which also disallow multiple *wh*.⁸¹

- (183) **What** would please **who** the most?
- (184) a. I cooked [**what** would please the children the best]. [single *wh* FR]
b. I knew [**what** would please the children the best]. [single *wh* resolvable]
- (185) a. * I cooked [**what** would please **who** the most]. [* multiple *wh* FR]
b. I knew [**what** would please **who** the most]. [multiple *wh* resolvable]

⁸¹ The ‘free adjunct free relative’ examples discussed by Izvorski (2000) appear to be an exception to the generalisation that multiple *wh* is impossible in free relatives, as the example in (i) illustrates. I restrict my attention here to simple FRs.

(i) Whichever CD you buy in whichever store, you always pay too much. [van Riemsdijk (2006: 360), ex. (59a)]

(F) Subject-Verb Agreement

The focus in this thesis is upon clauses serving as object complements, but for the sake of completeness I note briefly a distinction between FRs and resolutes, identified by Huddleston & Pullum (2002: 1069), which only becomes apparent when they are in subject position. FRs, like other nominals, can trigger verbal agreement for number, giving rise to the contrast between (186a), where the *wh*-expression is a mass noun and we find singular agreement, and (186b), where the *wh*-expression is a count noun, and we find plural agreement. Clauses in subject position, including resolutes, give rise to default third person singular agreement, even in a case such as (187), where the lexical content makes quite clear that the *wh*-expression relates to multiple purchases.

- (186) a. [What money she has] **is** in the bank.
[Huddleston & Pullum (2002: 1069), ex. (5)]
b. [What books she has] **are** in the attic.

- (187) [What she keeps buying] **is/*are** described at length on her website.

(G) Gapping

Gapping (see Ross (1967) for the earliest discussion, Yoshida & Wang (2012) for a more recent account), is defined by Haegeman & Guéron (1999: 162) as ‘involv[ing] the co-ordination of two constituents or conjuncts; the second conjunct contains an empty slot (a gap) corresponding to some element in the first constituent’. Typical cases involve deletion of the second verb when two clauses are co-ordinated. In an observation which he attributes to Rizzi (1982: 75-76, fn 32), Caponigro (2002: 142 f.n. 3), reports that in Italian, gapping is allowed in conjoined *wh*-Qs but not in conjoined FRs, providing the contrast between the grammatical case of gapping with conjoined resolutives in (188), and the ungrammatical case of gapping in the parallel case with conjoined free relatives in (189). English FRs involving *who* are in most contexts independently degraded (see discussion in (A) above), yet even so the contrast between (188) and (189) can be felt in the English translations of the Italian examples. Examples such as (190) involving the *wh*-expression *what* (equally acceptable in English resolutives and FRs), can be constructed to show even more clearly that the contrast between (acceptable) gapping of the verbal complex in conjoined resolutives (190a) and (ungrammatical) gapping in conjoined FRs (190b) holds for English just as much as it does for Italian.

- (188) Non ho ancora capito chi ha telefonato a Maria e chi (has
not have yet understood who has called to Maria and who (has
telefonato) a Giuliana.
called) to Giuliana.
'I haven't understood yet who called Maria and who (called) Giuliana.'

- (189) Ho punito chi ha telefonata a Maria e chi *(ha telefonato) a
 have punished who has called to Maria and who has called to
 Giuliana.
 Giuliana
 ‘I’ve punished who called Maria and who *(called) Giuliana.’

- (190) a. I told him what had upset the children and what (had upset) the adults.
 b. I gave him what had upset the children and what *(had upset) the adults.

(H) Extraction

A further distinction concerns extraction possibilities from the clauses under examination. Resolutives (191), like other interrogative complement clauses, are weak islands, as discussed in 3.2.2.2 above: whilst argument extraction is at worst mildly degraded (cf. 192a), adjunct extraction is altogether ungrammatical (cf. 192b). Free relatives (193), in contrast, are strong islands. Both argument extraction (cf. 194a) and adjunct extraction (cf. 194b) are ungrammatical.

- (191) I showed him [how she made the ribs yesterday].

- (192) a. ? Which dish did you show him [how she made ~~which dish~~ yesterday]?
 b. * When did you show him [how she made the ribs ~~when~~]?

- (193) I ate chicken [how he ate the ribs yesterday].

- (194) a. * Which dish did you eat chicken [how he ate ~~which dish~~ yesterday]?
 b. * When did you eat chicken [how he ate ribs ~~when~~]?

(I) Elliptical reduction (sluicing)

The final property to be noted here which distinguishes FRs from resolutives concerns the possibility for elliptical reduction of the clause, otherwise known as sluicing. This was already discussed in section 3.2.3.2 in relation to exclamatives. Although the facts were inconclusive with regard to whether sluicing could occur in embedded exclamatives, we saw in (129), repeated here as (195), that sluicing was possible in both true interrogative and resolute complements.

- (195) I knew he’d been buying a lot of books...
 a. so I asked why [~~he’d been buying a lot of books~~]. [true interrogative]

- b. and I finally found out why [~~he'd been buying a lot of books~~].
[resolutive]

Free relatives differ from resolutes in their behaviour when it comes to sluicing. When elliptical reduction is applied to the FR in (196b), the result is the ungrammatical (197b), which contrasts with the parallel resolutive examples in (196a) and (197a). The grammaticality of sluicing in (198) thus tells us that in this particular instance we are dealing with a resolutive, even though *discover* is a predicate which in principle can also take free relative complements.

- (196) a. Jill gave him something last night but I don't know what Jill gave him.
b. Jill gave him something last night, but then he lost what Jill gave him.
- (197) a. Jill gave him something last night but I don't know what [~~Jill gave him~~].
b. * Jill gave him something last night but then he lost what [~~Jill gave him~~].
- (198) Jill gave him something last night and now I've discovered what [~~Jill gave him~~].
[examples modelled on Huddleston & Pullum (2002: 1073) ex.(16)]

3.2.4.3 Resolutes vs. free relatives: summary

Table 6 - Summary of the properties distinguishing resolutes and free relatives

		resolutes	free relatives
A	Range of <i>wh</i> -expressions	<i>what, where, when, how, why which X</i>	<i>what, where, when, how what little, wh-ever</i>
B	Clefting	√	?*
D	Pied-piping	√	*
E	Multiple <i>wh</i>	√	*
G	Gapping	√	*
I	Elliptical reduction (sluicing)	√	*
F	Subject-Verb Agreement	*	√
C	Finiteness	finite √, non-finite √	finite √, non-finite *
H	Extraction	arguments √, adjuncts *	arguments *, adjuncts *

On the basis of the properties discussed above, it is clear that the view which equates resolutive interrogative complements with free relatives cannot be upheld. Table 6 provides

an overview of the nine ways in which resolutives and free relatives differ, which were drawn from the literature and discussed in turn in section 3.2.4.2 above. In addition to the structural differences noted, by far the most convincing evidence that we are dealing with two distinct structures is that in cases such as (156), repeated below as (199), the same string has two distinct readings, a propositional reading corresponding to a resolutive, and a nominal reading corresponding to a free relative.

- (199) I discovered [what Jo discovered].
 (i) I discovered the identity of the thing that Jo discovered. [resolutive]
 (ii) Jo discovered something and I discovered that same thing. [free relative]

Not unexpectedly, given that they are usually considered to be NPs, FRs also show syntactic properties typical of nominals: triggering subject-verb agreement and disallowing extraction, for instance. It is the fact that free relatives show the external distribution of nominals rather than of complement clauses, as discussed above, which motivates my decision to exclude them from the typology given here, and the further discussion of the distribution of FCCs in Chapter 5.

That there is such confusion between resolutives and free relatives might thus seem surprising, given the number of differences identified between the two, including in categorial status. Nevertheless, they have more in common than simply their surface form, as emerges from the overview Tables 7 and 8 in section 3.3 below. Thus, under one of the many predicates, such as *discover* (cf. 199), which are capable of taking both clausal and nominal complements, there is scope for confusion. Note that many of the distinguishing traits examined above pertain to very specific configurations which do not always obtain: a full finite complement clause, introduced by a non-clefted *wh*-expression such as *what*, *where*, *when* or *how* with no pied-piping, gapping or extraction, does not have any of the distinctive traits catalogued in Table 6 and thus could be an instantiation of either a resolutive or a FR. Furthermore, the fact that a certain diagnostic can successfully be applied at best shows that one particular reading is possible for the clause in question - but it does not exclude the possibility that the other reading exists alongside it. For instance, we can paraphrase the *wh*-complement in (199) with the cleft *what it was that John discovered*. Keeping in mind the discussion in 3.2.4.2 (B) above, this indicates that a resolutive reading is available, and in fact it is to this reading which the cleft corresponds interpretively. Yet this tells us nothing about the availability of a FR reading, which in this case is also possible. However, if we rather paraphrase the *wh*-complement by *whatever Jo discovered*, then this corresponds to the availability of a free relative reading, but alone tells us nothing about the availability of a FR reading. It is only the two tests in combination which suggest the availability of both readings.

This makes it clear that we cannot rely on any single diagnostic to differentiate resolutive and free relatives, but rather must take into account as many of the distinguishing properties given above as are applicable in the case in question. If fail-safe diagnostics for differentiating every potential case of confusion between a resolutive and a FR have not been provided in this section, then at the very least a warning to proceed with caution when faced with strings such as (199), and the diagnostics offered in the literature, has. For one point upon which there can be no remaining doubt is that we do have clear evidence from interpretation and syntactic properties that resolutive and FRs are syntactically distinct, and need to be treated as such.

3.2.5 Exclamatives vs. free relatives

The final case of conflation of categories which I discuss here briefly is between embedded exclamatives and free relatives. In the light of the discussion in the preceding sections, it should not come as a surprise that these have proven a source of confusion. Note first of all that embedded exclamatives have themselves received little attention, as discussed above in 3.2.3. Furthermore, in section 3.2.4 I demonstrated that resolutive and exclamatives show many similarities to each other in their syntactic behaviour, as do resolutive and free relatives. Thus it is to be expected that exclamatives and free relatives also pattern in similar ways with respect to some diagnostics.

There are only two accounts that I am aware of which touch on the issue of a similarity between exclamatives and free relatives. The first of these is Elliott (1974: 236), who observes that ‘there is at least one other construction [besides resolutive - RCN] which is in on the surface identical with some exclamations, viz., ‘free relatives’’. As was already noted in footnote 67, however, this is in fact a case of mistaken identity. The cases he has in mind are those such as (200). He considers the ambiguity here to be between an exclamative reading (i) and a free relative reading (ii), as he takes all clausal *wh*-clauses associated with ‘exclamatory’ predicates such as *fantastic* to be exclamatives. Yet as was discussed at length in section 3.2.4 above, there is good evidence to support the view that what we are dealing with here is in fact a case of ambiguity between a resolutive (i) and a free relative (ii), as in fact there are no exclamatives, root or embedded, introduced by the *wh*-expression *where*.

- (200) [Where they went on their vacation] is fantastic.
 (i) That they went where they went on their vacation is fantastic.
 (ii) The place where they went on their vacation is fantastic.
 [Elliott (1974: 236), ex. (46)]

In fact, I have come across no examples, either attested or constructed in other accounts in the literature, where the entire matrix predicate + *wh*-complement string is ambiguous between an exclamative and a free relative in the way that (200) is between a resolute and a free relative, nor have I been able to construct one. One of the main reasons for this is the limited overlap in the range of *wh*-expressions which can introduce them. The only potential case for confusion would have to involve bare *how*. The context would have to be such that both a (high) degree reading (for the exclamative) and a manner reading (for the free relative) were plausible, and the matrix predicates would need to accept both DP and CP complements. However, even if the examples are a little forced, a string such as *how she sang* plausibly seems able to serve as both an exclamative and a free relative, albeit when embedded in different contexts. Although the primary reading of the *wh*-complement in (201a) is as a resolute, it seems that there is also the possibility of reading it such that *how* means ‘how very much’ (or, perhaps, ‘in what an extraordinary manner’) - an exclamative reading thus. (201b) is also perhaps not the most natural free relative example, but is awkward rather than ungrammatical.⁸² Thus it seems, at a push, that there are cases which render true Elliott’s claim that embedded exclamatives and free resolutives may be string identical, even if the examples he chose to illustrate his claim do not in fact make the point intended, and constructing genuine examples is not straightforward.

- | | |
|-------------------------------------|------------------------|
| (201) a. He told me [how she sang]. | [resolute/exclamative] |
| b. She stole [how she sang]. | [free relative] |

Let us turn to the second, and much more recent, account which deals with an apparent resemblance between *wh*-exclamatives and FRs. This is the work of Rett (2008a: 168), which explores the idea that ‘*wh*-exclamatives are expressed with free relatives’. To understand what is meant by this, we need to consider the claim in the context of Rett’s work. Her goal is to provide ‘a semantic (rather than syntactic) characterization of exclamatives’ (Rett 2008a: 177). Thus Rett is not concerned with cases which are potentially ambiguous between exclamatives and free relatives, but rather with asking whether exclamatives should be modelled on the semantics of free relatives (as opposed to questions). Even if her focus is on the semantics of exclamatives, she draws on (morpho-) syntactic evidence in doing so. It is this evidence which I evaluate here.

Rett’s (2008a: 173) general line of argument is that whilst we find ‘languages in which questions and free relatives differ morphosyntactically [...] exclamatives pattern in their morphosyntax with free relatives rather than with questions’, conceding however that ‘a

⁸² (201b) is ambiguous between a reading of the complement as a PP complement (i.e. *she stole in the same way as she sang - stealthily*) and an NP complement (i.e. *she stole her singing style (from me)*). See Caponigro & Pearl (2009) on the distinction between PP and NP free relatives.

thorough crosslinguistic study of these constructions is necessary to give any serious weight to this claim.’ Her first specific argument is that ‘*what* + N_{PL}’ can range over degrees in exclamatives and relative clauses, but not in interrogatives’, that is to say it receives an ‘amount’ reading in the exclamative in (202a) and in the free relative in (202b), whereas in the interrogatives in (203) it rather receives an individual reading. Note that in my judgement, (202b) has a paucal reading (‘what few things he could’) of the kind discussed in 3.2.4.2 (A) above (where such expressions were seen to be the exception to the apparent exclusion of complex *wh*-phrases from free relatives). Note that this judgement does not seem to be shared by Rett (2008a), however, for whom (204) is grammatical. Furthermore, in my judgement the exclamative in (202a) not only does not have a paucal reading, but exclaims about the ‘quality’ rather than the ‘quantity’ of the ‘things’.

- (202) a. What things Mike put into his pockets!
 b. Mike put [what things he could] into his pockets.

[Rett (2008a: 173) ex.

(49)]

- (203) a. What things did Mike put into his pockets?
 b. I asked [what things Mike put into his pockets].
 c. I found out [what things Mike put into his pockets].

- (204) Mike put [what many things he could] into his pockets.

[Rett (2008a: 174 f.n.1)]

I do not pursue these differences in judgement further, as Rett (2008a) herself identifies two issues even without this additional complication. Firstly, for an amount readings to be possible in relatives, they ‘almost always require “contextual triggers” like modals and generics’ (Rett 2008a: 174), which is not the case for exclamatives. Even more problematic, however, is the fact that alongside *what* + N_{PL}, we also find *what a* + N_{SG} - but only in exclamatives, not free relatives. As Rett (2008a: 175) herself acknowledges, ‘It seems like an ideal account would provide the same explanation for the acceptability of *what* + N_{PL} and *what a* + N_{SG}’.

This thus seems to call into question Rett’s (2008a: 176) additional main argument, which is that ‘[t]he types of *wh*-phrases permitted in exclamatives in a given language seem to covary with those permitted in free relatives’.⁸³ She herself has provided a concrete example where this is not the case. Whilst not in a position to assess her claim that both free relatives and ‘exclamatives in Italian can allegedly be headed by any *wh*-phrase except for *why*’ (Rett

⁸³ She also gives two language-specific arguments, one from Paduan and one from Hebrew. I do not discuss these as they are not applicable to English, the language under consideration here.

(2008a: 176)), her claim that English exclamatives permit *how*, *what* and *how many/few*, whilst not incorrect, overlooks the subtleties in the precise make-up of the *wh*-expressions these occur in (see section 3.2.3.2 above), which in fact differentiate exclamatives and free relatives in crucial ways - ‘*how* + adjective/adverb’ can occur in the former but not the latter, bare *what* in the latter but not the former. Also overlooked is the fact, discussed in section 3.2.4.2 above, that there have been claimed to be English free relatives introduced by *where* and *when* (cf. Caponigro & Pearl 2009), and yet there is widespread consensus, at least for the root domain, that these *wh*-expressions cannot introduce exclamatives, and a strong case to be made that this holds in the embedded domain too (see section 3.2.3.4).

There are two additional arguments against considering exclamatives to be a realisation of a free relative semantics. The first is that Rett (2008a) considers the similarity between the two to hold for root exclamatives. Yet she has nothing to say about the fact that there are no root free relatives, a fact which seems to go unexplained on her account. The second, an observation made by Abels (2010: 141 f.n.1) focusses rather on embedded exclamatives, and on their external distribution in particular.⁸⁴ He points out that were embedded exclamatives in fact free relatives, they would be expected to distribute like them, counter to fact - the same argument that I made in section 3.2.4.1 above against equating resolutives with free relatives. (205a) shows the necessity of a preposition to introduce the DP complement to *amazed*, yet the preposition is optional in (205b) where the complement is an exclamation. This is unexpected if exclamatives are (DP) free relatives, and would need to be accounted for.

- (205) a. I am amazed *(at) the building.
 b. I am amazed (at) {how very tall the building is/what a tall building this is}.
- [Abels (2010: 141 f.n. 1), ex (i)]

In conclusion then, even from this brief discussion it is clear that whilst there certainly are similarities between embedded exclamatives and free relatives in English, there are also significant differences, not least in the range of *wh*-expressions which can introduce them. Whilst in the light of the above discussion of the similarities between exclamatives and resolutives on the one hand, and resolutives and free relatives on the other, the existence of such similarities is not surprising, it is a topic which has received much less attention in the literature than the other distinctions discussed above, and Rett (2008a) should be credited with putting it on the agenda.

⁸⁴ Abels (2010 141 f.n. 1) also observes an additional similarity between embedded exclamatives and free relatives, not noted by Rett (2008a). This is the fact that SAI is impossible in both (as it is in resolutives too).

3.3 A typology of finite complement clauses in English: summary

Table 7 provides an across-the-board comparison of the behaviour of all types of English FCC discussed in this chapter, as well as FRs, on certain key syntactic properties which were observed and evaluated above. Not every property considered in the discussion above is represented, only those which are applicable to a broad range of English FCCs, in order to allow for comparison. From Table 7, two main points emphasised throughout this chapter emerge. The first is that each of the five types of clausal complement discussed in this chapter merits the status of independent clause-type on the basis of the distinct combination of syntactic properties which distinguish it from all other FCCs, and from FRs. This is corroborated by the fact that each of these clause-types also has its own distinct interpretation. The second point that has become clear is the fact that it is only by looking at a range of properties that we can differentiate these FCCs. Almost all of the properties discussed are held in common by two or more kinds of FCC, thus no one test can serve as a fail-safe diagnostic for identifying the type of FCC we are dealing with. We have seen that restricting attention to a limited set of properties leads to confusion concerning the question of what does and does not constitute a distinct kind of complement clause, and what the correct classification of certain kinds of clausal complement should be.

A consequence of the fact that each kind of finite clausal complement displays a unique combination of syntactic properties, some of which are shared with other kinds of clausal complement, is that FCCs show varying degrees of similarity to one another. Certain kinds of FCC have many properties in common, others very few. This is summarised in Table 8, which takes the properties presented in Table 7, and presents the number of these held in common between any two different types of FCC (with a score of 1 awarded every time two FCCs share the designation \surd or $*$ for a particular syntactic property). It should be emphasised that these results are not intended to be of any numerical significance, and are of course a product of the particular syntactic properties deemed of relevance here (those given in the literature and discussed above which are applicable to a range of different FCCs). Common absence of a property from several FCCs may not necessarily stem from a single source. Thus table 8 provides an informal overview of the trends which emerge from Table 7.

Table 7 - Overview of the syntactic properties of English finite complement clauses

		true int.	res.	exclam.	FR	factive <i>that</i> - clause	non- factive <i>that</i> - clause
3.2.1.3 (B); 3.2.3.2 (E)	SAI	%√	*	*	*	*	*
3.2.1.3 (C)	embedded clause adjunct preceding the complement	√	*	*	*	*	*
3.2.1.3 (D)	can be fronted	?√	?*	?*	√	?*	√
3.2.1.3 (E); 3.2.2.2 (C); 3.2.3.2 (D)	NPI licensed	√	*	*	*	*(√ under negative emotive factives)	√ by external negation
3.2.2.2 (A); 3.2.4.2 (H)	island for extraction	√ weak	√ weak	√ strong	√ strong	√ weak	*
3.2.2.2 (B)	permit MCP (argument fronting)	*	*	*	*	%*	√
3.2.3.2 (G)	can contain unstressed negation	√/*	√/*	*	√	√	√
3.2.3.2 (H); 3.2.4.2 (I)	allows elliptical reduction (sluicing)	√	√	√/*	*	n/a	n/a
3.2.4.2 (B)	<i>wh</i> -expression can be clefted	√	√	*	?*	n/a	n/a
3.2.4.2 (C)	has a non-finite equivalent	√	√	*	*	*	*
3.2.4.2 (D)	pied-piping of P with <i>wh</i> - expression	√	√	√	*	n/a	n/a
3.2.4.2 (E)	multiple <i>wh</i>	√	√	*	*	n/a	n/a
3.2.4.2 (F)	as subject triggers agreement with V	*	*	*	√	*	*

3.2.4.2 (G)	allows gapping	√	√	*	*	*	*
3.2.1.3 (F); 3.2.3.2 (A); 3.2.4.2 (A); 3.2.5.1	range of <i>wh</i>- expressions	<i>who</i> ; <i>what</i> , <i>where</i> ; <i>when</i> ; <i>why</i> , <i>how</i> ; <i>which</i> <i>N</i> ; <i>how</i> + <i>adj./a</i> <i>dv.</i>	<i>who</i> ; <i>what</i> , <i>where</i> ; <i>when</i> ; <i>why</i> , <i>how</i> ; <i>which</i> <i>N</i> ; <i>how</i> + <i>adj./a</i> <i>dv.</i>	<i>how</i> ; <i>what a</i> + <i>sg. count</i> <i>N/ what</i> + <i>mass</i> <i>N/ plural</i> <i>count N</i> ; <i>how</i> (<i>very</i>) + <i>adj./adv.</i>	<i>what</i> ; <i>how</i> ; <i>when</i> ; <i>where</i> ; <i>what</i> <i>few/</i> <i>little</i> ; <i>wh-</i> <i>ever</i>	n/a	n/a

Table 8 - Number of properties held in common by English finite clausal complements

	true int.	res.	exclam.	FR	factive <i>that</i> - clause	non- factive <i>that</i> - clause
interrogative		11	5	4	4	4
resolutive	11		9	6	8	4
exclamative	5	9		9	9	5
FR	4	6	9		8	6
factive <i>that</i>-clause	4	8	9	8		11
non-factive <i>that</i>- clause	4	4	5	6	11	

Whilst each FCC shows a certain number of properties in common with each other type of FCC, it is clear that some kinds of FCC have more in common with each other than do others. For instance, true interrogatives show more properties in common with resolutes than they do with any other kind of FCC. Reciprocally, resolutes show more properties in common with true interrogatives. This provides motivation for the application of an overarching label ('embedded interrogatives') to both true interrogative and resolutive

complements to capture this commonality (and also explains why they are often conflated in the literature). That the two should nevertheless be distinguished is made clear by the fact that whilst true interrogatives do not closely resemble any other kind of FCC in terms of their syntactic behaviour, resolutes show almost as many similarities to exclamatives as they do to true interrogatives. This being the case, it is again easy to see how the cases of mistaken identity, of the type discussed in section 3.2.3.4 above, where resolute complements are taken to be exclamatives, arise. Resolutes also hold a considerable number of properties in common with factive *that*-clauses. With regard to factive and non-factive *that*-clauses, each shows a greater degree of similarity to the other type of *that*-clause than it does to any other type of FCC, hence making it unsurprising that they have sometimes been conflated. However, again, there is an asymmetry in that factive *that*-clauses also hold a significant number of properties in common with (the similarly factive) exclamatives, and with FRs, whilst non-factive *that*-clauses do not. Exclamatives themselves hold an equal number of properties in common with resolutes, free relatives and factive *that*-clauses.

Whilst, as emphasised, the patterns here are merely suggestive of trends, it seems noteworthy that those FCCs which have the greatest number of properties in common are also those which have been most often conflated in the literature. On the basis of these patterns, and taking into account the external distribution of the various kinds of FCC as presented in Chapter 5, in Chapter 6 I explore the idea that also in terms of their underlying structure, certain FCCs show greater similarities to each other than do others. First, however, I add another type of FCC to the inventory, introducing complementiser *how*-clauses in Chapter 4.

3.4 Conclusions

As a concluding remark, I wish to point out that the novel contribution of this chapter to the research on complementation is not the observations themselves, many of which have already been reported in the literature. It lies rather in bringing together and evaluating these many isolated observations. The picture is broadened from a focus on a one-to-one comparison of specific types of FCC - interrogatives and resolutes, factive and non-factive *that*-clauses - to a many-to-many comparison. What emerges from simultaneous consideration of a wider range of clause-types is that FCCs cannot be characterised in terms of a single distinguishing property. What makes each clause-type unique is the particular combination of properties that it displays.

The comparison of FCCs that results from the work, and as summarised in Table 7, serves as the backdrop against which in the following chapter I introduce data on another kind of finite complement clause in English, and one which has received relatively little attention to date: complementiser *how* clauses (CHCs). It is only by virtue of having a clear view of the key syntactic properties of other kinds of clausal complement in English, and of the emerging complex typology, that we can establish, on the basis of their own unique syntactic behaviour, that CHCs represent an additional kind of complement clause, and that we can assess which other kinds of FCC they show the greatest degree of similarity to. More generally, the observations concerning the syntactic differences between the FCCs given in this chapter can serve as diagnostics for determining the classification of novel or understudied kinds of complement clause, and be used to distinguish between surface-similar cases.

Finally, in line with the broader goal of this thesis, it will become apparent that it is crucial to have established a clear typology of the FCCs of English in order to be able to detect regularities in their external distribution. Conflating true embedded interrogatives and resolutes, and factive and non-factive *that*-clauses, as has frequently been done in the literature, gives a very different view of the distribution of English FCCs to when these categories are distinguished. In Chapter 5, I present the distributional patterns for the FCCs introduced in this chapter and for the CHCs presented in Chapter 4, and show that the fine-grained approach to distinguishing FCCs adopted here reveals new regularities in their distribution. This in turn gives a clearer indication of which factors have an influence upon the distribution of finite clausal complements in English and - equally crucially - which do not. This is explored further in Chapter 6.

Chapter 4 Properties of complementiser-*how* clauses in English

4.1 Introducing CHCs

Chapter 3 dealt with describing and disambiguating a range of English finite clausal complements (FCCs) which have received previous attention in the literature. The goal of this chapter is rather to provide an in-depth discussion of the properties of one specific - and under-studied - kind of FCC: what I term the complementiser-*how* clause (CHC), illustrated by the attested examples in (1). Such examples already give an indication of the interest that CHCs hold for this work, and indicate why I make use of the label ‘complementiser-*how* clause’ to designate them (although at this point remaining agnostic as to whether *how* in structural terms is a complementiser or a *wh*-phrase). At least in terms of their surface form, they qualify as another kind of *wh*-clause complement in addition to the true interrogatives, resolutes and exclamatives discussed in Chapter 3. As the examples in (2) and (3) show, CHCs can be string identical to other *wh*-clause complements: resolutes (cf. 2) and exclamatives (cf. 3).¹ Yet as the glosses for the examples in (1) indicate, their interpretation is closest to that of a declarative *that*-clause, rather than to a resolute or an exclamative, precluding an assimilation of CHCs to either of these clause-types.² Similarly, as is also the case for *that*-clauses, there are no root CHC-clauses, whereas

¹ Free relatives (ia) and CHCs (ib) can also be very similar in surface form, despite the fact that the former are analysed as nominal rather than clausal complements. See section 4.3.1 for arguments, contra Legate (2010), that CHCs are indeed clausal rather than nominal complements.

(i) a. Lily loathes [how all thieves work] - secretly. [Caponigro & Pearl (2009: 156), ex. (3b)]
b. Lily loathes [how all thieves work secretly].

² Given the lack of distinctive properties in the surface syntax of CHCs distinguishing them from resolutes and exclamatives introduced by *how*, determining which kind of *wh*-clause complement a particular attested *how*-clause example is relies on the judgement of the (native speaker) analyst as to the interpretation(s) of the clause.

the resolute and the exclamative in (2) and (3) seem to correspond to the root interrogative and exclamative in (4a) and (4b) respectively.^{3 4}

➤ **complementiser-*how* clauses**

- (1) a. A lot of people have told me [**how** I am more happy and outgoing as a person compared to back then].⁵

‘A lot of people have told me that I am more happy and outgoing as a person...’

- b. Jurors have heard [**how** the boy had been placed on the child protection register with Haringey social services nine months before his death].⁶

‘Jurors have heard that the boy had been placed on the child protection register...’

- c. An enthusiastic staff member explained [**how** the 1830s redbrick building had been an outmoded remand center].⁷

‘An enthusiastic staff member explained that the 1830s redbrick building had been an outmoded remand center.’

- d. When Erlendur arrived at the office, Elinborg and Sigurdur Oli sat down with him and told him [**how** they had learned nothing more from the present owners of Robert's chalet].⁸

Certain properties favour a CHC interpretation, however, such as the presence of negation in the embedded clause. I make use of this device when constructing CHC examples. Similarly, Legate (2010: 122 f.n.3) notes that she makes use of

‘stative predicates like *exist* that are not readily amenable to combination with a manner, or include manner adverbs and/or *because* clauses in constructed examples to disfavour the non-propositional interpretations’. The presence of these in attested examples is also a good indication that the *how*-clause in question is a CHC.

³ As observed by Defrancq (2009: 89), and illustrated with the attested examples in (i)-(iii) below (selected as cases which strongly favour a CHC interpretation over a manner reading of *how*), a CHC is able to occur without an (overt) embedding clause as a newspaper headline or title of a book (chapter). In this regard they pattern alike with other *wh*-clauses and DPs, in contrast to *that*-clauses, which cannot serve as headlines. I do not discuss this behaviour further, as it appears to be limited to this very specific context. It has already been observed that headlines can show distinct syntactic properties in certain regards, for instance article drop, as discussed by Weir (2009, 2012).

- (i) Experience is King (Or, How No One Cares Where You Went to School After Your First Job)
(From <http://www.ericpender.com/blog/experience-is-king>. Last accessed 28.03.2012).
- (ii) Monetizing the debt.. or how no one loves the dollar.
(From <http://www.sodahead.com/united-states/monetizing-the-debt-or-how-no-one-loves-the-dollar-thanks-to-obama-and-his-minions-the-fed/question-1718011/>. Last accessed 28.03.2012).
- (iii) How Obama has failed to act on gun control.
(From <http://www.guardian.co.uk>. Last accessed 16.12.2012).

⁴ The precise nature of this correspondence is beyond the scope of this work, the focus of which is upon the embedded domain.

⁵ From *The Observer* 27.07.2008 page 11 col. 2. Thanks to Liliane Haegeman for providing this and many of the other attested examples cited throughout.

⁶ From *The Guardian* 31.10.2008, page 8 col. 5.

⁷ From *The Independent on Sunday, Travel* 27.07.2008, page 7 col. 1.

⁸ Arnaldur Indridason, (2005) *Silence of the Grave*. Translated by Bernard Scudder. Vintage 99.

‘Elinborg and Sigurdur Oli told him that they had learnt nothing more from the present owners of Robert’s chalet.’

➤ **string-identical complementiser-*how* clauses and resolitives**

- (2) a. He told me [how she had made the cake], despite claiming that it had been her husband.
 ≈ ‘He told me that she had made the cake.’
 b. He told me [how she had made the cake] - with fresh ingredients just as her mother used to.
 ≈ ‘He told me the manner in which she had made the cake.’

➤ **string-identical complementiser-*how* clause and embedded exclamative**

- (3) a. He told me [how she had longed to go home] (but not as acutely as some of the others).
 ≈ ‘He told me that she had longed to go home.’
 b. He told me [how she had longed to go home] (with an intensity greater than that of the others).
 ≈ ‘He told me how very much she had longed to go home.’

➤ **root interrogative and exclamative**

- (4) a. How had she made the cake?
 b. How she had longed to go home!

Because of this apparent mismatch in form and meaning, CHCs raise interesting questions in relation to the issue of clause-type, the theoretical background to which was discussed at length in Chapter 2. This is in part the motivation for dedicating a separate chapter to CHCs alone, along with the fact that CHCs have received relatively little attention in the literature compared to the other kinds of FCCs that were presented in Chapter 3. Whilst Chapter 3 primarily involved a synthesis and evaluation of previously-observed properties of FCCs, this chapter will provide new observations on the properties of CHCs, as well as an assessment of those which have previously been identified.

I begin by offering a comprehensive overview of the existing literature on CHCs in section 4.2. In light of the fact that the most detailed previous analysis of CHCs, Legate (2010), attributes to these FCCs a DP-structure parallel to that assigned to free relatives, in section 4.3 I demonstrate at some considerable length that CHCs are rightful members of the typology of finite clausal complements. This relies largely on distributional arguments, which compare the possibility of FCCs, CHCs and DPs/FRs occurring in a range of different environments, with data primarily drawn from English, and supporting evidence offered from Dutch. The outcome is that CHCs distribute like the former rather than the latter: they are able to occur in contexts where FCCs can, and FRs/DPs cannot, and are excluded from contexts where FRs/DPs can occur, and FCCs cannot. These facts are most parsimoniously accounted for if CHCs are also analysed as CPs. Having motivated my decision to treat

CHCs as clausal complements, I leave a full discussion of the distribution of CHCs to Chapter 5, where the external distribution of all the English FCC discussed in this work is presented. There, when the distribution of all 6 kinds of FCC under a broad range of clausal-complement-taking predicates is considered, the striking pattern emerges that CHCs have precisely the same distribution as resolutes and exclamatives. Given that resolutes and exclamatives are more or less uncontroversially accepted as being CP complements, this lends further support to such an analysis for CHCs, whose common distribution with these FCCs would otherwise be difficult to account for.

Having focussed on the commonality CHCs show to other FCCs in terms of distribution, in the remainder of the chapter I motivate my decision to nevertheless treat CHCs as a distinct type of FCC, demonstrating what is unique about CHCs, as well as what they have in common with other clause-types. In section 4.4, it is shown that although CHCs hold certain key interpretive properties, such as factivity, in common with other clausal complements - factive *that*-clauses and exclamatives - they are nevertheless interpretively distinct from both these clause-types. A similar picture emerges when the syntactic properties of CHCs are considered in section 4.5. Making use of the syntactic diagnostics which were used to compare the FCCs with each other and with free relatives in Chapter 3, I present new empirical observations on the behaviour of CHCs. What emerges is that although I deem there to be good grounds for not equating CHCs to FRs in structural terms, it is nevertheless indisputable that the two have much in common in terms of their syntactic behaviour. The pattern of syntactic behaviour shown by CHCs is also similar to that seen for embedded exclamatives and factive *that*-clauses. As was the case for the other five kinds of FCC discussed in Chapter 3, there is no single property which distinguishes CHCs from all other FCCs. On any given diagnostic, they pattern alike with one or more of the other kinds of FCC. What rather makes them distinctive is the unique combination of properties that they involve, alongside their particular interpretation. On these grounds, CHCs can be established as a distinct type of FCC and integrated into the typology of FCCs developed in the previous chapter.

4.2 The existing literature on CHCs

The earliest reference to CHC of which I am aware is in the historical work of Warner (1982). Based on the occurrence of complementiser-*how* clauses in specific Old English texts, he makes certain observations on their distribution and interpretation in comparison to *that*-clauses, which I will discuss at the relevant points in this chapter. This work has been overlooked by almost all authors who have subsequently given any attention to CHCs,

although many of the claims which he makes seem to hold equally for more recent stages of the language. The descriptive work of López Couso & Méndez Naya (1996) does cite Warner (1982), and gives further examples of CHCs dating from as far back as the Old English period. The work of both Warner (1982) and López Couso & Méndez Naya (1996) is discussed further in Chapter 5, section 5.3.1.1, where the claims they make about the classes of predicates which can embed CHCs are evaluated.

Historical work in the last decade has used CHCs to illustrate a theoretical point, without reference to the earlier observations made by Warner (1982) and López Couso & Méndez Naya (1996). Both Willis (2007) and Van Gelderen (2009) make use of CHCs to exemplify the process of reanalysis in the CP domain: phrases in specifier position being reinterpreted as C heads. For their purposes, it is the very existence of CHCs - ‘declarative’ clauses introduced by *wh*-expressions - and their putative historical development which is of interest, more than the details of their syntactic behaviour or their distribution.⁹ Whilst my concern here is on the synchronic status of CHCs in Present Day English, this intersects with historical work, as only with a good understanding of the current syntactic behaviour of CHCs can we establish how far along the proposed grammaticalisation path such clauses are. Even less attention has been paid to English CHCs from a synchronic perspective. Melvold (1991: 116 f.n. 17) notes the existence of such clauses in a footnote, but it is not until the work of Legate (2010) that a description of any but the most obvious surface properties of CHCs is attempted.¹⁰ The observations that Legate (2010) makes will be discussed and evaluated in the course of the discussion in sections 4.3-4.5 below. My own previous work (Nye 2012) on the distribution of CHCs is reprised in section 4.3.

Whilst the focus here is upon English FCCs alone, it is to be noted that CHCs are by no means restricted to this language. In previous work of my own, I have considered CHCs in Dutch as well as English (Nye 2012), but predating this is mention of CHCs in Basque (Uriagereka 1999), and detailed discussion of the narrative function of CHCs in French by

⁹ Legate (2010: 121) defines a CHC as ‘a declarative embedded clause...introduced by *how* rather than *that*’. I refrain from characterising CHCs as ‘declarative’ however, given that I make use of this label for clause-types as defined and distinguished on syntactic grounds, and that the greatest commonality between CHCs and *that*-clauses seems rather to be interpretive than syntactic.

¹⁰ Legate (2010: 121) similarly notes that the CHC ‘appears to have largely escaped notice in the linguistic literature’, a more accurate representation of the situation than that presented in the abstract to her paper, where CHC is described as ‘a construction in English which has hitherto escaped attention in the linguistic literature’. Legate (2010: 121) herself notes that Legate (2002) and Caponigro & Polinsky (2008) already make reference to the structure. Additionally, she discusses references to CHCs in grammar books and writing guides, the latter of which prescribe against the use of *how* as a complementiser, advocating the use of standard *that* in its place. As will become clear in the course of this chapter, whilst my approach to CHCs differs considerably to that of Legate (2010), I fully endorse her conclusion that ‘*how* is not a simple alternate to *that*’ (Legate 2010: 122).

Defrancq (2009).¹¹ Legate (2010: 132) herself observes that ‘the *how*-clause strategy is not unique to English’, noting the existence of CHCs in Greek and Hebrew as well as French. My own preliminary investigations reveal that the list of languages in which CHCs are attested can be extended considerably, to include both additional members of the language families already represented (Romance: Italian, Romanian, Spanish; Germanic: German, Afrikaans) and members of other language families altogether (Slavic: Bulgarian, Slovene; Uralic: Estonian, Finnish; Celtic: Breton, Welsh).^{12 13} The list given here is most probably far from exhaustive, for there are numerous languages and language families not taken into account. It remains to be seen to what extent CHCs show a common behaviour and distribution across languages. The detailed description of English CHCs provided here has the potential to serve as a reference point for future cross-linguistic comparison. Even more fundamentally, the question of why the use of *how* as a complementiser is such a common strategy cross-linguistically is a particularly interesting one for further research. Note in this regard that it is certainly not the case that complementiser *how* is to be found in every language. It does not appear to exist in the Mainland Scandinavian languages (Swedish and Norwegian, for instance), nor in Farsi, Japanese, Mandarin Chinese or Thai. Such issues are, however, beyond the focus of the current work, which is the distribution of finite clausal complements in English. However, it is ultimately desirable, in order to have a full understanding of complementiser-*how* clauses specifically, and of finite clausal complementation more generally.

Returning to English, the striking fact that emerges from an overview of the previous literature on CHCs is just how little attention has been paid to this clause-type, in comparison to the finite clausal complements discussed in Chapter 2. With certain notable exceptions (López Couso & Méndez Naya 1996; Legate 2010; Nye 2012), where CHCs are mentioned at all, this is in passing as a footnote, or in support of a more general point. That little attention has been paid to CHCs in and of themselves is particularly surprising given firstly the evidence indicating that this structure is by no means a recent innovation in English, having been around for as long as we have written records of the language, and

¹¹ I return to the narrative function of CHCs in my discussion of the interpretive properties of English CHCs in section 4.4 below. French CHCs are first touched upon by Defrancq (2005). See Defrancq (2009) for references to other work which has noted the use of *how* as a complementiser in French, as well as for a potential example of complementiser *how* in Latin.

¹² Note that Hungarian *hogy*, identical in form to interrogative *how* in this language, is also used as a complementiser. However, in contrast to the situation in English (and the other languages listed above), where complementiser *how* is available in addition to *that*, *hogy* is the standard declarative complementiser in Hungarian, with a distribution more similar to that of English complementiser *that* than complementiser *how*. See section 4.5.1.1 below.

¹³ Michal Starke (2011) adds to the list Polish, Czech, Arabic and Hindi, as well as noting Korean, and Meitelon as languages which do not have complementiser *how*.

secondly how pervasive this structure is cross-linguistically. Certainly in (British) English, CHCs are anything but ‘peripheral’ in the language, occurring frequently in spoken language, journalistic texts and novels, amongst other sources. Where possible, the observations made in this chapter are illustrated with attested examples of CHCs. Yet not only have CHCs been neglected in their own right, they have also been completely overlooked in accounts which attempt to describe and explain the distribution of FCCs in English. The consequence, I argue, is that no existing account parsimoniously captures the full range of empirical data. The aim of this work is to go some way towards rectifying this situation. In this chapter, I devote attention to the properties of CHCs themselves, and situate them within the typology of FCCs drawn up in Chapter 3. In Chapter 5, I present the distribution of the 6 types of FCC considered in this work - factive *that*-clauses, non-factive *that*-clauses, resolutives, interrogatives, exclamatives and CHCs - and show that once we broaden the range of FCCs taken into consideration, new distributional regularities emerge. This calls for a new approach to capturing the distribution of English FCCs, and this is what I offer in Chapter 6.

4.3 CHCs as clausal complements

Before embarking upon a detailed discussion of the interpretive properties of CHCs (see section 4.4), and of their behaviour in relation to the syntactic diagnostics given in Chapter 3 (see section 4.5), I begin by motivating the decision to include CHCs within the typology of finite clausal complements at all. Under Legate’s (2010) analysis of CHCs as DPs, they no more belong in such a typology than do the free relatives which in Chapter 3 I deliberately opted to put aside. Legate (2010) puts forward 3 main arguments for analysing CHCs as DPs. She claims that such an analysis explains (i) their factivity (ii) the fact that they are strong islands for extraction (iii) their distribution. I briefly consider each of these in turn, before focussing my attention upon (iii).

Although I agree that Legate’s observation that CHCs are factive is accurate (as will be discussed in section 4.4.1 below), and that this could potentially be attributed to a (null) definite determiner in the syntax, this is by no means the only potential source of factivity. Whilst certain accounts do analyse factive *that*-clause complements as involving DP-syntax (cf. Kiparsky & Kiparsky 1971), other accounts have proposed that factive *that*-clauses, just like non-factive *that*-clauses, are CPs, with their factivity resulting from the presence of a factive operator (cf. Melvold 1991) for instance, as will be discussed in detail in section

6.2.1.3.¹⁴ Thus whilst the factivity of CHCs is certainly compatible with their being analysed as DPs, it does not argue strongly in favour of this position.

A more convincing case for a DP analysis of CHCs can be made on the basis of the strong island status of CHCs, in so far as this is a point of contrast with both embedded interrogatives (both resolutive and true interrogatives) and factive *that*-clauses which, whilst islands for extraction, are weak islands rather than strong islands (see discussion in Chapter 3). Definite DPs and FRs have been shown to be strong islands however (see Cecchetto & Donati (2011 for recent discussion). Yet although not a widely-discussed fact in the literature, (embedded) exclamatives too are strong islands, and yet the overwhelming majority of analyses take these to be CPs and not DPs. Once again then, whilst certainly compatible with a DP analysis, the strong island status of CHCs does not necessitate such an analysis.

Given that the factivity and strong island status of CHCs do not seem to necessitate a DP analysis for these clauses, my focus here is upon the third argument: the distribution of CHCs. It was already observed in Chapter 3 that nominal complements (including free relatives) show differences in their distribution to clausal complements, in terms of the range of predicates under which they can be embedded, for instance. Testing the possibility for CHCs to occur in such contexts should thus reveal whether CHCs distribute like DP or, rather like CPs. In the former case, it seems that the factivity and strong island status of CHCs could then indeed be attributed to the presence of a (null) definite determiner. However, in the latter scenario, where CHCs consistently show the distribution of canonical clausal complements, I take this to be a decisive argument in favour of the view that these properties cannot be attributed to the presence of a (definite) determiner in their syntax.

In what follows, I show that this is precisely the case: CHCs consistently distribute like CPs - and, more specifically, like *wh*-CPs - rather than like DPs. In section 4.3.1, I show that the arguments which Legate provides in favour of a DP analysis of CHCs are not compelling. Certain of these are empirically accurate observations about the distribution of CHCs, but do not serve the intended purpose of demonstrating that CHCs differ in distribution from clausal complements, whilst others give a restricted or inaccurate view of the distribution of CHCs. I provide additional contexts in English where CPs and DPs diverge in their distribution, with CHCs patterning like the former rather than the latter and, on the basis of this, make my case for a CP analysis of CHCs. In section 4.1.2, I provide supporting evidence for a CP-analysis of CHCs from a language other than English, namely Dutch, where CPs and DPs diverge more sharply in their distribution than they do in English.

¹⁴ Zanuttini & Portner (2003) make a similar proposal for (root) exclamatives, as do Ono & Fujii (2006).

My aim in this section is not to give a comprehensive picture of the distribution of CHCs, but simply to highlight certain crucial environments where CPs and DPs diverge in their distribution, and to demonstrate that in such cases, CHCs pattern like the former rather than the latter. In Chapter 5, I give a more detailed overview of the classes of predicates which embed CHCs, in the context of discussion of the distribution of all six types of English FCC under discussion here. The crucial point to be made here is simply that, as complements with the distribution of *wh*-CPs, rather than of definite DPs, there can be no doubt that CHCs merit their position in the typology of the finite clausal complements of English.

4.3.1 Evaluating Legate (2010): the case against a DP analysis of CHCs

Legate (2010: 122) presents five arguments in favour of her view that ‘the *how*-clause has the external distribution of a DP rather than a CP’. These are that:

- (i) CHCs can be coordinated with DPs → **section 4.3.1.1**
- (ii) CHCs may occur as the complement of a preposition → **section 4.3.1.2**
- (iii) CHCs can appear under the empty case-marking preposition *of* → **section 4.3.1.3**¹⁵
- (iv) CHCs occur in the PP complement of a predicate which can take either CP or PP complements → **section 4.3.1.3**
- (v) CHCs cannot appear in positions to which case is not assigned → **section 4.3.1.4**

I discuss these properties in turn. In what follows, I show that whilst properties (i)-(iii) are empirically correct, they do not distinguish CHCs from other finite *wh*-clause complements, for which the accepted analysis is as a CP. Furthermore, properties (iv) and (v) do not even appear to accurately capture the empirical facts for CHCs.

4.3.1.1 CHCs and coordination

As noted above, the issue here is not the empirical observation. CHCs can indeed be coordinated with DPs, and the attested examples in (5) and (6) can be added to those provided by Legate (2010: 123) to support this point.¹⁶ The question is whether these indeed

¹⁵ A consideration of the possibility of CHCs occurring under the empty case-marking preposition *of* is subsumed here under discussion of the general ability of CHCs to occur under prepositions.

¹⁶ In (5), (6) and the other examples involving CHCs given throughout section 4.3.1, I mark the bracketed complementiser-*how*-clauses with the label ‘CHC’. This should not be understood as a label of the structure in the

serve the function which Legate (2010: 123) attributes to them of ‘supporting [the] analysis of the *how*-clause as a DP’.

- (5) In Portsmouth, Francis King remembers [DP **the time** Olivia Manning’s ashes were buried in Mike and Parvin’s garden on the Isle of Wight] and [CHC **how** afterwards Neville Braybrooke, who wrote Olivia’s biography, recited a poem which I’ve never forgotten].¹⁷
- (6) His folks hated his long hair though. His father, especially, grumped about [DP **hair** in the bathroom] and [CHC **how** he couldn’t tell if his son was a boy or a girl from behind].¹⁸

Note in the first instance that other *wh*-clauses can similarly be coordinated with DPs. The attested and perfectly grammatical example in (7) involves coordination of an embedded resolute, a DP, two embedded exclamatives and a CHC. Note that a CP analysis is standardly assumed for embedded exclamatives and interrogatives, including in the latter case by Legate (2010) herself: embedded interrogatives are taken to be CP complements, with which CHCs are contrasted.¹⁹ As exclamative and interrogative CPs can successfully be co-ordinated with DPs, it seems that the *how*-clause in (7) could just as plausibly be a CP-complement as a DP complement.

- (7) They had been talking about [CP **what** their menfolk were up to] (“I hope mine is painting the kitchen,” said Hughes) and [DP **the quality** of bras from Primark], but also, of course, about [CP **what a lovely girl** Kate seemed to be], and [CP **what a good King** William would make], and [CHC **how** this was a little slice of history in the making].²⁰

Furthermore, both DPs (cf. 8) and CHCs (cf. 9) can be coordinated with declarative *that*-clauses, the paradigm case of a CP complement. In general, there seems little reason to believe that coordination can only ever obtain between constituents of the same category (cf. Huddleston and Pullum (2006)).²¹ In light of the examples presented here, the behaviour

way that ‘CP’ and ‘DP’ are, but rather as shorthand for ‘CP/DP?’ i.e. as an indication of the yet-to-be-determined categorial label for CHCs. It is intended merely as a useful visual device to allow easy identification of the CHCs for, as was illustrated in (2) and (3) above, these can be string-identical to other *wh*-clauses.

¹⁷ From *The Observer*, 06.07.2008, p.32 col.5.

¹⁸ From *Larry’s Party*, Carol Shields (2006), London: Harper Perennial, p.244.

¹⁹ ‘I show that the *how*-clause exhibits systematically distinct behaviour not only from the corresponding embedded declarative CP headed by *that*...but also from embedded interrogative CPs’ (Legate 2010: 122).

²⁰ From *The Guardian*, 30.04.2011 p. 6 col 2.

²¹ Huddleston and Pullum (2006: 201) rather express the restriction on coordination as follows: ‘A coordination of α and β is admissible at a given place in sentence structure if and only if each of α and β is individually admissible

of CHCs seems as compatible with a CP-analysis as with a DP-analysis. This diagnostic thus proves inconclusive. Hence I turn to another test Legate offers.

- (8) Given [DP **Sartre's other liaisons**], and [CP **that** this was the height of the women's movement], it seems to fly in the face of common sense.²²
- (9) And so, in his Scottish island croft in August, Darling, 55, did tell her (the Guardian's Decca Aitkenhead) everything about [CHC **how** he hates public kissing and Cherie Blair's memoirs], [CHC **how** other people want his job and reshuffles are a rotten idea]; [CHC **how** he realised quite how bad the economic crisis was when he picked up the FT in a supermarket in Majorca], and er, [CP **that** he reckoned that crisis was the worst for 60 years].²³

4.3.1.2 CHCs as complements to prepositions

Once again, the basic data observation is uncontroversial: CHCs may indeed occur as the complement to a preposition (cf. 10a), just as can DPs (cf. 10b), whilst *that*-clause complements cannot (cf. 10c), just as Legate (2010) illustrates. Additional examples of CHCs occurring as the complement to a preposition are attested, not only when the PP is selected by a verbal predicate as in (11), but also when an adjectival (cf. 12) or nominal predicate (cf. 13) is involved.²⁴

- (10) a. They told me about [CHC **how** the tooth fairy doesn't really exist].
 b. They told me about [DP **the tooth fairy's non-existence**].
 c.* They told me about [CP **that** the tooth fairy doesn't really exist].
 [Legate (2010: 122), ex. (2a-c)]
- (11) Most coaches will shuck and jive and cliché you to death about [CHC **how** polls don't matter], and who cares about being No 1.²⁵
- (12) Even if we had to suffer to the end of the bloody thing, that would be poignantly emblematic of [CHC **how** women have historically suffered], wouldn't it?²⁶

at that place with the same function.' Thus if DPs and CPs are both able to be selected as the complement of a given matrix predicate or preposition, the fact that they can be coordinated should not be surprising.

²² From *The Guardian*, G2, 10.06.2005, p.8, col. 1-2.

²³ From *The Guardian*, 29.12.2008, p.8 col.3/p.9 col.1.

²⁴ See also examples (6), (7) and (9) above.

²⁵ New York Times, 8.3.4 page D3, col 2

²⁶ From <http://www.guardian.co.uk/stage/theatreblog/2011/oct/04/walk-out-top-girls-caryl-churchill>, 04.10.2011.

- (13) There is a real backward trend in [_{CHC} **how** women are increasingly objectified in magazines], and obsession with image and the perfect female form has reached an absolute frenzy.²⁷

What is problematic, however, is the conclusion drawn to the effect that in this regard a CHC behaves ‘Like a DP, but unlike a CP’ (Legate 2010: 122). Whilst in their ability to occur as the complement to a preposition, CHCs do appear to diverge from *that*-clause CPs in their distribution, this is a property which they share with other *wh*-clause complements.²⁸ Embedded exclamatives (cf. 14) and interrogatives (both true interrogatives (cf. 15) and resolutes (cf. 16)) can also occur as the complement to a preposition^{29 30}.

- (14) That's how I found out about [_{CP} **what a** great store Aldies is].³¹

- (15) I asked about [_{CP} **why** she'd cut her hair so short].³²

- (16) Then I found out about [_{CP} **why** you need to eat back exercise cals and not to do excessive cardio].³³

What's more, we can even find examples of the latter kind within Legate's (2010) own paper (cf. 17 & 18), where *whether*-clauses are shown occurring as the complement to a preposition, yet it does not appear to be Legate's (2010) intention to claim that *whether*-clauses are DPs.³⁴ In the light of the examples in (14)-(16), CHCs appear to behave exactly

²⁷ From *The Observer* 21.12.2008, p.2 col. 3.

²⁸ Although see Chapter 3, footnote 34 for discussion of work by Yamabe (1993), which argues that, contrary to appearances, ‘a *that*-clause is a legitimate object of prepositions’, but that morphological constraints rule out the sequence ‘P *that*’ (Yamabe 1993: 119), where a syntactic relation holds between P and *that*.

²⁹ Note that even as the complement to prepositions, true interrogative clauses can display some of the properties which in Chapter 3 were shown to distinguish them from resolutes, for instance, subject-auxiliary inversion and the presence of aggressively non-D-linked *wh*-expressions, as we see in the attested example in (i). As the focus of this work is on the behaviour and distribution of finite clausal complements which occur as the direct complement of the matrix predicate, a full study of the properties of FCCs as complements to prepositions awaits further study. See Ginzburg & Sag (2000: 349) and Egré (2008: 24-7) for brief discussion of the role of the preposition *about* in introducing embedded clauses. Page numbers for Egré refer to the pre-publication manuscript version available to download from http://jeannicod.ccsd.cnrs.fr/ijn_00226386/fr/. Last accessed 17.09.2013.

(i) i asked about [why the hell would he strip the rear seats]

From <http://forums.clubrsx.com/archive/index.php?t-522249.html>. Last accessed 16.02.2013.

³⁰ See also the resolute and exclamative clauses as complement to P in the attested example in (7) above.

³¹ From <http://www.forlocations.com/reviews/view/aldi/879/1>. Last accessed 16.02.2013.

³² From <http://www.thestudentroom.co.uk/showthread.php?t=2174191>. Last accessed 16.02.2013.

³³ From <http://www.myfitnesspal.com/topics/show/658516-ladies-how-many-cals-do-you-eat?page=8>. Last accessed 16.02.2013.

³⁴ Legate (2010: 124) provides these examples as illustration of predicates which, in her terms, s-select (in the sense of Grimshaw's (1979) semantic-selection; see also the discussion in Chapter 5 of this work) for complements

like other *wh*-CPs in being able to occur as the complement to a preposition. *wh*-CPs show different behaviour in this regard to *that*-clause CPs, which cannot occur as the complement to a preposition. Once again then, as a diagnostic for the categorial status of CHCs this proves inconclusive. CHCs, DPs and interrogative and exclamative CPs behave alike in being able to occur as the complement to a preposition.

- (17) It depends on [_{CP} **whether** the tooth fairy really exists].
[Legate (2010: 124), ex. (8a)]

- (18) They don't give a damn (about) [_{CP} **whether** the tooth fairy really exists].
[Legate (2010: 124), ex. (8g)]

4.3.1.3 CLHCs occur in the PP complement of a predicate which can take either CP or PP complements

The optionality of the preposition in Legate's example (18) shows that under predicates which permit both CP and PP complements, interrogative *wh*-clause complements can be either the direct complement of the predicate, or can alternatively be introduced by a preposition.³⁵ Legate (2010: 123) claims that under such predicates, the '[complementiser]

of the interpretive type 'question', and hence do not permit CHC complements. In Chapter 6 I argue that the distribution of FCCs is not determined by s-selection, and make an alternative syntactic proposal.

³⁵ Even though it is only in (18) that Legate indicates the optionality of the preposition, at least in my own idiolect, the option is also available in (17) for the *whether*-clause to occur as direct complement to the predicate.

- (i) It depends [**whether** the tooth fairy really exists].

Note that under the predicates *don't give a damn* and *depend*, both DP complements (cf. ii) and CHCs (cf. iii) are excluded as direct complements of the predicate when the preposition is omitted (similarly under *don't care* and *inquire*). Other CP complements are permitted in this context - interrogatives and declaratives under *don't give a damn* and *don't care*, interrogatives under *inquire* and declaratives under *depend* (cf. illustrative examples in (iv)). The observation that such predicates permit (certain) CP but not DP complements is made, in a different context, by Grimshaw (1979: 303).

- (ii) a. * I don't give a damn [_{DP} his unwillingness to help].
b. * It depends [_{DP} his unwillingness to help].
(iii) a. * I don't give a damn [_{CHC} how he's unwilling to help].
b. * It depends [_{CHC} how he's unwilling to help].
(iv) a. I don't give a damn [_{CP} why he doesn't want to help].
b. It depends [_{CP} why he doesn't want to help].

Such patterns do not seem to pose a challenge to the view that CHCs are CPs rather than DPs however. Firstly, exclamative CPs also seem to be severely degraded, if not outright ungrammatical in the same contexts (cf. v)

- (v) a. ?? I don't give a damn [_{CP} what a busy man he is].
b. * It depends [_{CP} what a busy man he is].

More generally, note that my claim is not that CHCs consistently occur in complementary distribution with DPs (although in some contexts this is the case, as illustrated in the main body of the text), but rather that the two do

how-clause occurs in the PP' alone, however. That is to say, not only can a CHC occur as complement to a preposition, in such cases it must do so. She provides examples such as (19) and (20), which illustrate the same pattern: the CHC can occur under the predicate in question when introduced by a preposition (cf. a), but cannot be the direct complement of the predicate (cf. c).³⁶ A *that*-clause complement can occur as the direct complement to the same predicate, however (cf. b) (*that*-clauses are independently excluded from occurring as the complement to prepositions, as was illustrated above in (10c)).

(19) a. I fretted about [_{CP} **how** the tooth fairy doesn't exist].

b. I fretted [_{CP} **that** the tooth fairy doesn't exist].

c. * I fretted [_{CHC} **how** the tooth fairy doesn't exist].

[Legate (2010: 124), ex. (6a)-(c)]

(20) a. I'm embarrassed of [_{CHC} **how** I changed seats because he appeared while sleeping to be dangerous].

b. I'm embarrassed [_{CP} **that** I changed seats because he appeared while sleeping to be dangerous].

c. * I'm embarrassed [_{CHC} **how** I changed seats because he appeared while sleeping to be dangerous].

[Legate (2010: 124), ex. (6d)-(f)]

Note, however, that under the particular predicates which Legate makes use of in these examples, *fret* and *embarrassed*, other kinds of *wh*-clause complement also obligatorily require the preposition, as is illustrated for embedded interrogatives in (21a) and (22a), and for embedded exclamatives in (21b) and (22b). The *whether*-clause is used in (21a) to provide a direct contrast with Legate's own example in (18), where we saw that in principle *whether*-clause complements can occur either directly as the CP complement or in the PP complement to a predicate such as *give a damn (about)*. The exclusion of CHCs as direct complement to *fret* and *be embarrassed* seems only a side-effect of a more general restriction against direct *wh*-complements to these predicates.

not consistently pattern alike. Therefore the existence of certain contexts where DPs and CHCs are both accepted (see discussion in section 4.3.1.2), or both excluded, as in examples (ii) and (iii), does not threaten this generalisation. It is clear from the discussion in the main body of the text that this is not the general tendency.

³⁶ Whilst I share Legate's intuitions, it appears that for some native English speakers, CHCs can in fact occur as the direct complement to *embarrassed*, as the examples in (i) illustrate. It would be interesting to know whether the same speakers also permit interrogative and exclamative complements to *embarrassed*, or whether there is a group of speakers for whom CHCs pattern like *that*-clauses rather than like *wh*-clause complements.

(i) a. I used to be really embarrassed [**how** I didn't know much about cooking].

From <http://startcooking.com/blog/88/Chicken-Stir-Fry-with-Scallions>. Accessed on 16/08/2010.

b. Today Captain Chris will be the first to admit that he is embarrassed [**how** he thought of himself as a true "tough guy" at the time, and even considered getting involved in the hot new martial arts craze back then: Ultimate Fighting and Mixed Martial Arts].

From <http://www.closecombattraining.com/captainchris.php>. Accessed on 16/08/2010.

- (21) a. I fretted *(about) [_{CP} **whether** I should go to the party].
 b. I fretted *(about) [_{CP} **what a** mess we had made of the kitchen].
- (22) a. I'm embarrassed *(of) [_{CP} **what** I said to her].
 b. I'm embarrassed *(of) [_{CP} **what a mess** we had made of the kitchen].

Indeed, there are other predicates where CHCs (and other *wh*-complements) can freely occur as either the direct complement or within the PP complement, as under *tell* in (23) below. Note that whilst (23b) confirms Legate's (2010: 123) observation that CHCs can occur under *of*, comparison with (23a) makes clear that this is an option, not a requirement. (23c) shows another *tell* + P + CHC possibility. Numerous other examples could be given with predicates such as *speak*, *talk*, *learn* and *hear*, to name but a few.

- (23) a. A former dancer has told [_{CHC} **how** she almost broke sleazy Italian Prime Minister Silvio Berlusconi's wrist when he tried to fondle her at one of his infamous parties].³⁷
 b. Meanwhile, passengers who made it back to the UK yesterday told of [**how** they learnt of the airline's collapse via text messages from home, or saw the news on TV].³⁸
 c. She told about [_{CHC} **how** the street wasn't so wide and the cars were bigger].³⁹

The examples in (24)-(26), involving the predicate *strike*, are even more revealing. Once again, the CHC can occur either as direct complement (cf. 24a) or in the PP complement (cf. 24b). In this regard, it patterns alike with the embedded exclamative in (25), where the preposition *by* is similarly optional.⁴⁰ In contrast, the preposition is obligatorily required to

³⁷ From <http://www.dailymail.co.uk/news/worldnews/article-1200736/I-nearly-broke-Berlusconis-wrist-Former-dancer-complains-Italian-PMs-wandering-hands.html>. Last accessed on 12.03.2012.

³⁸ From *The Observer*, 14.09.2008, p.7 col.3.

³⁹ From Leah M. Melber & Alyce Hunter (2009: 40) *Integrating Language Arts and Social Studies: 25 Strategies for K-8 Inquiry-Based Learning*, SAGE. Available to view through Google Books from: <http://books.google.co.uk/books?id=-5RVO2LJJk4C&pg=PA40&lpg=PA40&dq=%22she+told+about+how%22&source=bl&ots=EVB6W4PEXg&sig=qcCXNQigD6Hrs2tgryUs4MKmu6E&hl=en&sa=X&ei=I2ofUcfHB-SM4gTktYDwAQ&ved=0CEMQ6AEwBTgK#v=onepage&q=%22she%20told%20about%20how%22&f=false>. Last accessed 16.02.2013.

⁴⁰ Abels (2010) uses similar examples to make the case against the free relative analysis for (embedded) exclamatives proposed by Rett (2008) (see discussion in section 3.2.5.1). He argues, along the same lines as I do for CHCs, that 'If they [embedded exclamatives] were free relatives, they should be restricted to positions that accept NPs' (Abels (2010: 141 f.n. 1)). He shows that this is not the case, providing the examples in (i) to illustrate that whilst DPs (NPs, in Abels' terminology) obligatorily require the preposition (cf. ia), with embedded

introduce the DP complements in (26) (modelled on the CHCs and exclamatives in (24a, b) and (25a)). This is another case then of CHCs patterning with other *wh*-clauses, to the exclusion of DP complements.

- (24) a. I was struck [_{CHC} **how** she was so eager (ok, fanatical) about preaching].⁴¹
 b. I was struck by [_{CHC} **how** two much repeated points of language in the musical now seem bizarrely quaint].⁴²

- (25) a. In sorting through the different shots I took, I was struck [_{CP} **what a difference** the angle makes].⁴³
 b. I was struck by [_{CP} **what a difference** that 90 miles makes].⁴⁴

- (26) a. I was struck **(by)* [_{DP} **her eagerness** about preaching].
 b. I was struck **(by)* [_{DP} **the quaintness** of two much repeated points of language in the musical].
 c. I was struck **(by)* [_{DP} **the difference** the angle makes].

To conclude then, it has been shown that with certain predicates, such as *fret* and *embarrassed*, it does indeed appear to be the case that CHCs must occur in the PP complement to the predicate, rather than as direct complement. However, in these contexts the same requirement was shown to hold for other *wh*-clauses, despite evidence that under other predicates which take both CP and PP complements, these are able to occur as direct complement to the predicate. It was additionally illustrated that there are many predicates which permit both CP and PP complements, and to which CHCs can occur as direct complement as well as in the PP, just as other *wh*-clauses can and, crucially, unlike canonical cases of DPs, which require the preposition. Thus upon this diagnostic, CHCs in fact show the distribution of (*wh*)CPs, rather than DPs.

exclamatives this is optional (cf. ib). Note that the preposition is similarly optional with a CHC under the same predicate (cf. ii).

- (i) a. I am amazed **(at)* the building. [Abels (2010: 141 f.n. 1) ex. (ia,b)].
 b. I am amazed (at) {how very tall the building is/what a tall building this is}.
 (ii) a. I am amazed at [how he never gives up on anything].
 b. I am amazed [how he never gives up on a dream].

(iia) is from <http://www.bebo.com/Profile.jsp?MemberId=18163093>. Last accessed 16.02.2013.

(iib) is from <http://www.gucchdgeorgetown.net/ucedd/documents/words/bestfriend.pdf>. Last accessed 16.02.2013.

⁴¹From:

http://www.democraticunderground.com/discuss/duboard.php?az=show_mesg&forum=104&topic_id=5316199&mesg_id=5321041. Last accessed 16.02.2013.

⁴² From *The Independent* 26.07.2008, p.44 col. 5.

⁴³ From <http://annebingham.wordpress.com/tag/buddlia/>. Last accessed 16.02.2013.

⁴⁴ From <http://readmymyriadmusings.blogspot.be/2011/10/what-difference-90-miles-makes.html>. Last accessed 16.02.2013.

4.3.1.4 CHCs cannot appear in positions to which case is not assigned

Behind the claim (now shown to be inaccurate) that CHCs must occur in the PP complement of predicates which accept both CP and PP complements lies the more general idea that CHCs - like DPs, and unlike CPs - cannot appear in positions to which case is not assigned. Given the evidence presented above showing that CHCs can occur as direct complement to predicates which accept both CP and PP complements, as well as in the PP complement, whilst DPs cannot, it should come as no great surprise to learn that CHCs are not in fact restricted to occurring in positions to which case is assigned. Legate (2010: 124) provides the examples in (27) to illustrate a context in which CHCs (cf. 27a) and DPs (cf. 27b) are ungrammatical, whilst *that*-clauses are acceptable (cf. 27c). The suggestion is that both CHCs and DPs are excluded because both require case, which is not available in this position. Yet once again, other *wh*-clauses seem to be independently excluded in this position (cf. 28), even though these are not taken to require case.⁴⁵

- (27) a. * It was conceded [_{CHC} **how** the tooth fairy doesn't exist].
b. * It was conceded [_{DP} **the tooth fairy's non-existence**].
c. It was conceded [_{CP} **that** the tooth fairy doesn't exist].
[Legate (2010: 124) ex. (7)]

- (28) a. * It was conceded [_{CP} **what** I said to her].
b. * It was conceded [_{CP} **what a mess** we had made of the kitchen].

Thus again, CHCs pattern like other *wh*-clauses. The ungrammaticality of (cf. 27a) does not argue for a distinct analysis for CHCs. That we wish to consider all of these *wh*-clauses as CPs, rather than DPs, is provided by environments where CHCs and other *wh*-clause complements are permitted, and yet DPs are not, such as those presented in (24)-(26) above. Other contexts where CHCs similarly pattern like CP complements, to the exclusion of DPs, in occurring in non-case-marked positions can be provided from English. One such context is under predicates such as *funny*, *odd*, *interesting*, *strange* and *remarkable*, as illustrated in (29), which is modelled on Legate's examples. Attested examples are given in (30).

- (29) a. It's funny [_{CHC} **how** the tooth fairy doesn't exist].
b. * It's funny [_{DP} **the tooth fairy's non-existence**].

⁴⁵ A Google(.co.uk) search for the string "it was conceded what a" returned not a single hit on a search conducted on 16.02.2013.

c. It's funny [_{CP} **that** the tooth fairy doesn't exist].

- (30) a. It's interesting [_{CHC} **how** all these bankers have been writing in detailing their experiences and woes after being laid off.].⁴⁶
b. It's strange [_{CHC} **how** good can come out of tragedy].⁴⁷
c. It's remarkable [_{CHC} **how** New Labour MPs who once spoke nobly about being 'the servants of the people' now complain to journalists that 'if we don't get rid of Gordon we could be out of power for a generation'].⁴⁸

Another such context is under the 'idiomatic imperative *look*' (Huddleston (1993a: 183 f.n.7)). As well as the exclamative (cf. 31b) (and interrogative) complements which Huddleston (1993a: 183 f.n.7)) identifies as being possible, CHCs are also possible (cf. 31a). *That*-clauses are not (cf. 30c), as Huddleston (1993a: 183 f.n.7)) observes, but neither are DP complements (cf. 30d, e). Here we have a context then where *wh*-clause complements, including CHCs, pattern alike, showing a distinct distribution to both *that*-clause CPs and DPs.

- (31) You're deluding yourself if you think he's committed.
a. Just look [_{CHC} **how** he never shows up for meetings].
b. Just look [_{CP} **what a** terrible attendance rate he has].
c. * Just look [_{CP} **that** he never shows up for meetings].
d. * Just look [_{DP} **his absence rate**].
e. * Just look [_{DP} **this/that**].

Thus whilst sharing the grammaticality judgements Legate gives for the examples in (27), in the light of the facts presented in (28)-(31) these receive a different interpretation. CHCs, unlike DPs, are able to occur in certain non-case marked positions, just as interrogative and exclamative complements are. The divergence in distribution from *that*-clause CPs is explained by the fact that some contexts appear to permit *that*-clause CPs but not *wh*-clause CPs (cf. 27, 28), whilst other contexts conversely permit *wh*-clause CPs but not *that*-clause CPs (cf. 31). Where *that*-clause complements and *wh*-clause complements diverge in distribution, CHCs always pattern like the latter. As nominal complements are excluded in both (28) and (31), it is clear that the distribution of CHCs (and other *wh*-clause complements) does not track that of DPs.

⁴⁶ From *The Observer*, 25.05.2008 p.6 col.1.

⁴⁷ From *The Observer*, 16.03.2008 p.9 col.5.

⁴⁸ From *The Independent*, 29.07.2008, p.25 col.3.

4.3.1.5 Summary

To summarise the empirical findings of section 4.3.1, the striking pattern which emerges is the common distribution of CHCs with other *wh*-clauses (specifically embedded exclamatives and resolutes, a finding which I explore in more depth in Chapter 5). This holds for all four of the distributional diagnostics employed by Legate (2010). Contrary to Legate's claims, upon closer inspection it transpires that CHCs and DPs distribute alike on only two of these diagnostic tests. The first supposedly DP-like characteristic CHCs display is their ability to be coordinated with other DPs, a property shown to be trivial in light of the fact that the three kinds of CP complement considered here - exclamatives, resolutes and *that*-clauses - are also able to be coordinated with DPs. Similarly, the second diagnostic - ability to occur as the complement to a preposition - does not in fact make a cut between DPs and CPs, but rather between DPs and *wh*-CPs on the one hand, and *that*-clause CPs on the other. So whilst CHCs do pattern like DPs, to describe this behaviour as DP-like, or to conclude that it must necessarily be attributed to CHCs themselves being DPs is to overlook the fact that *wh*-clauses, also analysed as CPs, show the same distributional behaviour.

The results of the final two diagnostics Legate applies are even more problematic, as here the behaviour of CHCs actually diverges from that of DPs. We see that in fact it is only DPs which are subject to the requirement that they occur in the PP complement of a predicate which can take both CP and PP complements, once we consider predicates which are capable of embedding *wh*-complements in the first place. A predicate such as *concede*, which independently excludes *wh*-complements, will give the impression that CHCs and DPs behave alike. However, once we consider predicates such as *strike*, which do permit *wh*-clauses as direct complements as well as in their PP complements, we see that the distribution of CHCs and DPs diverges, as the latter are still required to occur in the PP complement, whilst the former are not. From this and a range of additional contexts, we see in fact that only for DPs is there an absolute restriction on their occurrence in positions to which case is not assigned: CHCs and other *wh*-clauses seem indifferent to the assignment of case, whilst *that*-clauses seem to actively resist it (cf. Stowell 1981).

Table 1 - Summary of the behaviour of English complements on Legate's (2010) distributional tests

	Distributional test	DP	CHC	exclamative	resolutive	<i>that</i> -clause
4.3.1.1	coordination with a DP	√	√	√	√	√
4.3.1.2	complement to P	√	√	√	√	*
4.3.1.3	obligatorily occur in the PP complement of predicates which can	√	*	*	*	n/a

	take either CP or PP complements					
4.3.1.4	able to appear in positions not assigned case	*	√	√	√	√

4.3.1.6 Conclusions

In conclusion then, the discussion in section 4.3.1 has revealed that CHCs pattern no more like DPs than do other *wh*-clause complements for which a CP analysis has standardly been assumed. Within the class of CP complements, it is indeed the case that *wh*-clause complements seem to have a more similar distribution to DPs than do *that*-clause complements (in their ability to occur as complements to prepositions, for instance). Yet the fact that *wh*-clause complements are able to occur in (non-case-marked) positions from which DPs are excluded argues against assimilating the former to the latter. This holds just as much for CHCs as it does for embedded interrogatives and exclamatives.

In reassessing the categorial status of CHCs, I have not departed from the methodology used by Legate (2010): comparing the distribution of CHCs to both CP and DP complements to see with which of these kinds of complements they pattern like. Legate (2010) provided the starting point for my investigation of the distribution of CHCs and, as has been made clear above, is to be credited with novel, and often accurate, observations about the distribution of CHCs, and with providing attested cases to exemplify these, a practice that I have also followed. Rather than having broken with Legate (2010), I consider the picture presented here a refinement of her account: albeit with a markedly different conclusion. What then explains the different outcomes of our investigations? In my reconsideration of the distribution of CHCs, I have broadened both the range of complement clauses and the range of embedding contexts taken into account. Contra Legate (2010), I do not consider that the exclusion of a *that*-clause complement from a particular context is sufficient to conclude that CP complements more generally are excluded. By extending the coverage to include *wh*-clause complements, a new generalisation emerges (to be refined in Chapter 5), which is that CHCs pattern exactly like CPs, when compared to *wh*-CPs. The common distribution of CHCs and other *wh*-CPs seems most parsimoniously explained if CHCs are themselves also considered to be CP complements. As such, they merit their position in the typology of finite clausal complements which I began to draw up in Chapter 3.

4.3.2 The distribution of Dutch CHCs: supporting evidence for a CP analysis

Before leaving the issue of the distribution of CHCs and turning to their interpretive and syntactic properties, I present additional distributional evidence in favour of a CP analysis of CHCs. Once again, this comes from a consideration of contexts where the distribution of CPs and DPs diverges, and where CHCs pattern like the former rather than the latter. This time, however, it draws on data from Dutch.⁴⁹ The key data and the main line of the argument presented in this sub-section draws heavily on Nye (2012).

In Dutch, as in English, CHCs (cf. 32a) provide an additional ‘declarative’ complementation strategy alongside the standard, well-documented *dat* (‘that’)-clause complements (cf. 32b).⁵⁰ (33) provides a recent attested example of a Dutch CHC from a journalistic text. There appears to be a stylistic difference between CHCs in Dutch and those in English. In Dutch, many speakers consider CHCs to be a feature of formal, written language, whereas in English, the opposite seems to hold: they are seen as a common feature of ‘informal English,’ as Legate (2010:121) observes, and are common in both oral and written language⁵¹. In terms of their formal properties however - and pending a detailed investigation of their behaviour - it appears that Dutch CHCs such as (32a) and (33) are directly equivalent to their English translations, modulo the word order differences in the embedded clause, which relate to the fact that Dutch is a verb-final language.⁵² It is this property of Dutch, combined

⁴⁹ As explained in Nye (2012: 30) ‘The Dutch data comes from a pilot questionnaire study of 15 native speakers of Dutch, conducted in collaboration with Liliane Haegeman, a native speaker of the language. The sample includes speakers of both Southern Dutch (Flemish) and Northern Dutch, and comprises both male and female informants of various ages. All have a high level of education. As this was a preliminary investigation with the aim of determining whether and to what extent CLHCs are accepted in Dutch, and of gaining an initial indication of their distribution, no effort was made to ensure that the sample was representative, nor to look at the influence of social and/or geographic factors on the responses given. The questionnaire included 62 items, involving CLHCs, *wh*-clauses, *that*-clause complements and DP complements. Informants were asked to rank each item on a scale of 1-5, where 1 indicated that they considered the item to be perfectly grammatical, and 5 that they felt it to be absolutely ungrammatical. They were also asked whether or not they felt CLHCs to be associated with a particular register of the language, and were given the opportunity to make any additional comments on any of the items in the questionnaire.’

⁵⁰ See footnote 9 for discussion of why the term ‘declarative’ is problematic in relation to CHCs.

⁵¹ Note that at least in the British press, CHCs are very common in journalistic writing including in ‘quality’ newspapers, as can be seen by considering the sources of many of the attested CHCs used by way of exemplification in this chapter. Thus they are by no means restricted to very informal registers of the language.

⁵² Dutch CHCs, like their English equivalents, can occur as the complement to prepositions:

(i) Ik heb verteld over [hoe hij me in al die jaren nooit geholpen heeft].
I have told about how he me in all these years never helped has
‘I’ve told about how in all these years he has never helped me.’

with the fact that the language shows clear distributional differences between CPs and DPs, which allows additional diagnostics not available for English to be used to add further weight to the claim that CHCs are CPs, not DPs.

- (32) a. Ik heb haar nooit verteld [hoe hij me niet geholpen heeft].
 I have her nevertold how he me not helped has
 ‘I’ve never told her that he didn’t help me.’
 b. Ik heb haar nooit verteld [dat hij me niet geholpen heeft].
 I have her nevertold that he me not helped has
 ‘I’ve never told her how he didn’t help me.’
- (33) Ine vertelt [hoe zelfs de ombudsman van de NMBS niet veel meer
 Ine tells how even the ombudsman of the NMBS not much more
 kon vertellen...] ⁵³
 was.able.to tell.inf...
 ‘Ine tells how even the NMBS ombudsman wasn’t able to tell [her] much more...’

4.3.2.1 CLHCs and the middlefield

As noted above, Dutch is a verb-final language, a fact reflected in the surface word order of embedded clauses (see the final position of the finite auxiliary in the examples in (32)). In main clauses, this fact is obscured by the fact that Dutch displays verb second (V2) - a finite verbal predicate always occupies second positions in a declarative main clause. In the examples in (34) to (37), the inflected finite auxiliary form *zal* ‘will (1st/2nd/3rd singular)’ consistently occupies second position, following the subject. The infinitive *vergeten* ‘to forget’ is in final position. Between the two is the stretch of the sentence referred to as the middlefield.

In Dutch there is a sharp contrast between the ability of DP and CP complements to occur in the middlefield. DPs are able to do so (cf. 34a) even when heavy (cf. 34b). Declarative *dat*-clause CPs, are excluded from the middlefield, however (cf. 35), as are interrogative CPs (cf. 36).⁵⁴ Similarly, for the majority of speakers, CHCs cannot occur in the middlefield (cf. 37). In this regard, they clearly pattern like the other CP complements, and unlike DP complements.

⁵³ From *De Standaard*, 03/12/2012, p8, col.2-3.

⁵⁴ Previous work has found that *dat*-clause complements to factive verbs are more acceptable in the middlefield than *dat*-clause complements to non-factive verbs (cf. Barbiers 2000:192) but this finding was not replicated in my study. Almost all speakers deemed factive and non-factive *that*-clauses equally ungrammatical in the middlefield.

- (34) a. Ik zal [DP dat verhaal] nooit vergeten.
 I will that story never forget
 'I will never forget that story.'
- b. Ik zal [DP het feit dat hij me toen niet geholpen heeft] nooit
 I will the fact that he me then not helped has never
 vergeten.
 forget
 'I will never forget the fact that he didn't help me then.'
- (35) *Ik zal [CP dat hij me toen niet geholpen heeft] nooit vergeten.
 I will that he me then not helped has never forget
 'I will never forget that he didn't help me then.'
- (36) *Ik zal [CP waarom hij me niet geholpen heeft] nooit vergeten.
 I will why he me not helped has never forget
 'I will never forget why he didn't help me.'
- (37) *Ik zal [CHC hoe hij me toen niet geholpen heeft] nooit vergeten.
 I will how he me then not helped has never forget
 'I will never forget how he didn't help me then.'

4.3.2.2 Extraposed CHCs

A further position which is in principle available to complements in Dutch is extraposed position, following the non-finite verb. Groos and van Riemsdijk (1981:184), summarise the extraposition possibilities for Dutch as follows: 'Essentially, PP and S [CP, in current terms - RCN] may follow the verb, but NP and AP may not'.⁵⁵ The judgements of my Dutch-speaking informants reflect this: DPs, even when heavy, were deemed unacceptable in extraposed position (cf. 38) by all informants. Declarative *dat*-clauses (cf. 39) and interrogative CPs (cf. 40), on the other hand, were accepted by all the speakers surveyed when extraposed. Once again CHCs pattern like the CP complements, in being accepted in similarly being accepted in complement position (cf. 41).

- (38) a. *Ik zal nooit vergeten [DP dat verhaal].
 I will never forget that story
 'I will never forget that story.'

- b. *Ik zal nooit vergeten [DP het feit dat hij me toen niet geholpen

⁵⁵ The restriction against extraposed NPs (or DPs, in my terminology) is not absolute. Heavy Noun Phrase Shift (HNPS) in Dutch is claimed to be apply in a highly restricted range of range of registers. It is 'always stylistically marked and mostly limited to jargons, in particular the jargon of law and administration' (Groos and van Riemsdijk 1981: 185).

I will neverforget the fact that he me then not helped
has
heeft].
'I will never forget the fact that he didn't help me then.'

(39) Ik zal nooit vergeten [CP dat hij me toen niet geholpen heeft].
I will never forget that he me then not helped has
'I will never forget that he didn't help me then.'

(40) Ik zal nooit vergeten [CP waarom hij me niet geholpen heeft].
I will never forget why he me not helped has
'I will never forget why he didn't help me'.

(41) Ik zal nooit vergeten [CP hoe hij me toen niet geholpen heeft].
I will neverforget how he me then not helped has
'I will never forget how he didn't help me then.'

Putting together the patterns observed in this section with those of 4.3.2.1 above, the picture which emerges is one in which, at least in neutral contexts, Dutch DP and CP complements are in complementary distribution: DPs can occur in the middlefield, but cannot be extraposed (except in particular registers or for specific effects), whilst CPs are excluded from the middlefield but are perfectly acceptable when extraposed. What is striking is that - at least for the speakers questioned - CHCs show precisely the distribution of CP complements: they are grammatical in extraposed position, but ungrammatical in the middlefield. Far from having a DP-like distribution then, CHCs appear to occur in complementary distribution to DPs.

4.3.2.3 The ordering of CHCs and PP complements

The final diagnostic from Dutch which I apply concerns the ordering of DP and CP complements in relation to any PP complements which the predicates in question might permit. It has been observed that with verbs which select both a DP and a PP complement, 'DP complements must precede PP complements' (Barbiers 2000:189). With verbs which select both a CP and a PP complement, the reverse is true: 'CP complements must follow PP complements' (Barbiers 2000:189).⁵⁶ Both of these observations find broad support amongst the respondents of the informal survey I conducted. DP complements preceding PP complements are deemed perfectly acceptable (cf. 42a), whilst the reverse order, if not altogether ungrammatical, is judged to be severely degraded (cf. 42b). Conversely, CP complements preceding PP complements are degraded whilst CP complements following

⁵⁶ Moulton (2011: slide 16) in fact makes a similar observation for the ordering of CP and PP complements in specific contexts in English.

PP complements are deemed of perfect grammaticality. This holds both for *dat*-clause complements (cf. 43) and for *wh*-clause complements, such as the interrogative complement clause in (44). For many speakers, the pattern for CHCs (cf. 45) replicates that seen for *dat*-clause CP complements in (43): severely degraded grammaticality when preceding a PP complement (cf. 45a), perfect grammaticality when following a PP complement (cf. 45b).⁵⁷

(42) a. Ik vertelde [_{DP} dat verhaal] [_{PP} aan Marie].

I told that story to Marie

b. ??/*Ik vertelde [_{PP} aan Marie] [_{DP} dat verhaal].

I told to Marie that story

‘I told that story to Marie.’

(43) a. ?? Ik vertelde [_{CP} dat hij me nooit geholpen had] [_{PP} aan Marie].

I told that he me never helped had to Marie

b. Ik vertelde [_{PP} aan Marie] [_{CP} dat hij me nooit geholpen had].

I told to Marie that he me never helped had

‘I told Marie that he had never helped me.’

(44) a. ?? Ik vertelde [_{CP} waarom hij me niet geholpen heeft] [_{PP} aan Marie].

I told why he me not helped has to Marie

b. Ik vertelde [_{PP} aan Marie] [_{CP} waarom hij me niet geholpen heeft].

I told to Marie why he me not helped has

‘I told Marie why he hadn’t helped me.’

(45) a. ?? Ik vertelde [_{CHC} hoe hij me in al die jaren nooit geholpen had]

I told how he me in all these years never helped had

[_{PP} aan Marie].

to Marie

⁵⁷ It should be noted that judgements for the acceptability of the relative orderings of CHC and PP complements are not always so clear cut. Whilst the judgements for the example in (i) go in the same direction as those in the body of the text - the variant with the CHC preceding the PP complement is deemed less grammatical than the variant with the CHC following the PP complement - the latter is also considered to be less fully grammatical, thus the distinction between the (a) and (b) examples is less sharp than in (45). As the examples in (45) differ from those given here in (i) only in the additional presence of the adverbial *in al die jaren* ‘in all these years’, it seems possible that the improved grammaticality of (45b) over (ib) may potentially be due to a weight effect of the CHC. This requires further investigation, however. Not further that for some speakers there is no difference in grammaticality between (ia) and (ib). Such variation also remains to be explored.

(i) a. ?? Ik vertelde [_{CHC} hoe hij me nooit geholpen had] [_{PP} aan Marie].

I told how he me never helped had to Marie

b. ? Ik vertelde [_{PP} aan Marie] [_{CHC} hoe hij me nooit geholpen had].

I told to Marie how he me never helped had

‘I told Marie how he had never helped me.’

- b. Ik vertelde [_{PP} aan Marie] [_{CHC} hoe hij me in al die jaren nooit
 I told to Marie how he me in all these years never
 geholpen had].
 helped had
 ‘I told Mary how in all these years he had never helped me.’

4.3.2.4 The distribution of Dutch CHCs: summary

Table 2 provides a summary of the distributional patterns observed for Dutch CHCs and other complements in section 4.3.2 above. The pattern that emerges is clear: on each of the 3 diagnostics considered, CHCs pattern like CPs, both *dat*-clauses and *wh*-CPs. In each case, DPs show a different distribution. Far from suggesting that CHCs have a DP-like distribution, in these contexts Dutch CHCs occur in complementary distribution to DPs. Note that what is offered here is by no means a full picture of the distribution of Dutch CHCs, or of Dutch complements more generally. The intention was simply to make use of the structural differences between Dutch and English to provide additional support for the view that emerges from the discussion of English: CHCs distribute like CPs, and not like DPs.

Table 2: Summary of the distributional behaviour of Dutch complements

	Distributional test	CHC	DP	<i>wh</i> -CP	<i>dat</i> - clause
4.3.2.1	occurs in the middlefield	*	√	*	*
4.3.2.2	able to be extraposed	√	*	√	√
4.3.2.3	preferred position is following PP complement of verb	√	*	√	√

4.3.3 The categorial status of CHCs: conclusions

In the course of section 4.3, various distributional diagnostics for the categorial status of complements have been considered, for both English and Dutch. All of the arguments presented, including those from Legate (2010), have taken much the same form. Contexts were considered where CP and DP complements differ in their distribution. CHCs were then assessed to see if they patterned more like the former or the latter. Contrary to the conclusions drawn by Legate (2010), the overwhelming trend which emerged, once a broad range of complement types and contexts was considered, was for CHCs to pattern like CPs

rather than DPs. In fact, not a single context was identified in which CHCs pattern like DPs to the exclusion of (*wh*-)CP complements. Any apparently DP-like behaviour which CHCs show in terms of their distribution is also displayed by other complements which are standardly analysed as CPs. There are numerous contexts, in both English and Dutch, however, where CHCs and CPs show one distributional pattern, and DPs another. Therefore, the distributional evidence seems to point clearly in favour of a CP analysis for CHCs. Any other conclusion is not only at odds with the empirical facts, but runs counter to well-known generalisations about the distribution of CP and DP complements in Dutch, for instance.

This of course says nothing about the interpretive or internal properties of CHCs, which I now turn to in the following sections. It may well be the case that in these regards, CHCs do show similarities to structures which are (taken to be) DPs, for instance free relatives. But whatever CHCs hold in common with these, on the basis of the distributional evidence, we can rule out the possibility of attributing it to a common categorial status. CHCs belong firmly in the typology of finite clausal complements under consideration here and as such, in section 4.5 I discuss their internal properties in terms of the diagnostics used in Chapter 3 to compare the established members of the typology. Before turning to these, in section 4.4 I characterise CHCs in terms of their interpretive properties.

4.4 Interpretive properties of CHCs

As was noted in the introduction above in relation to the examples in (1), (with (1a, b) repeated here in (46a,b), in broad terms CHCs seem to correspond in interpretation to *that*-clause complements - or at the very least, these seem closer as a point of reference than do the interrogative and exclamative complement clauses to which CHCs show a surface resemblance (cf. 2 & 3 above). However, as will be made clear in this section, CHCs and *that*-clauses are not altogether identical in interpretation. The interpretation of CHCs is in subtle ways distinct, as was all fact already noted by Warner (1982: 181). It is this distinct interpretation, in conjunction with the fact that - as will be shown in the following section, section 4.5 - CHCs show their own pattern of internal syntactic behaviour, which motivates the identification of CHCs as a distinct member of the typology of FCCs. In section 4.4.1 I discuss factivity, a property which characterises not only CHCs but other FCCs too. In subsequent sub-sections I focus on properties specific to CHCs.

- (46) a. A lot of people have told me [how I am more happy and outgoing as a person compared to back then.

b. Jurors have heard [how the boy had been placed on the child protection register with Haringey social services nine months before his death].

4.4.1 Factivity

The first - and perhaps most important - characteristic interpretative property of CHCs is their factivity. The term ‘factive’ was introduced by Kiparsky & Kiparsky (1971) in relation to *that*-clause complements in order to characterise the presupposition ‘that the complement of the sentence expresses a true proposition’ (Kiparsky & Kiparsky 1971: 345). The relevant definition of ‘presupposition’ which I make use of is that of Shanon (1976: 247), for whom ‘A sentence *S* logically presupposes a sentence *P* just in case *S* logically implies *P*, and the negation of *S* also logically implies *P*’.⁵⁸ As discussed in Chapter 3, section 3.2.2.1, two kinds of *that*-clause can be identified on the basis of their behaviour in this regard. The contrast is illustrated by the examples in (47) and (48). The propositional content of the *that*-clause complement to *forget* in (47a) is logically implied. This same logical implication holds even in (47b), where *forget* is negated. The content is therefore taken to be presupposed and thus, in line with the terminology coined by Kiparsky & Kiparsky (1971), the *that*-clause complement can be labelled factive. In (48), in contrast, there is no logical implication of the truth of the propositional content of the complement clause, regardless of whether *think* is affirmative (cf. 48a) or negated (cf. 48b). The *that*-clause complement is thus deemed non-factive.⁵⁹

- (48) a. John thought [that Mary was never late]. \nRightarrow Mary was never late
b. John didn't think [that Mary was never late]. \nRightarrow Mary was never late

⁵⁹ In fact, there is inconsistency in the literature as to whether it is complement clauses or rather matrix predicates which are to be distinguished in terms of factivity. This reflects the debate as to the locus of factivity, which I discuss in section 6.2.1.2. As explained in section 3.2.2.1, I continue to refer to *that*-clauses as factive or non-factive dependent on whether they show the pattern of behaviour in (47), or rather that in (48), without yet committing myself to a view as to whether or not the complement clause is the locus of the encoding of factivity.

invariably, if a predicate which embeds CHCs is also able to take *that*-clause complements, then these will be factive in interpretation. This holds not only for *forget*, but also for *find out*, *discover*, *see*, *hear* and *learn*, amongst many others predicates. Predicates which embed non-factive *that*-clauses, for instance *assert*, *claim*, *believe* and *think* tend not to permit *wh*-clause complements, including CHCs.⁶¹ However, there is an exception, and this is the predicate *tell*.⁶² The *that*-clause complements to *tell* are not factive, and yet the CHC complements to this same predicate appear to be. In fact, *tell* is the matrix predicate which Legate (2010: 126) makes use of in illustrating her claim that the content of CHCs is presupposed whilst that of a *that*-clause is not, providing contrasts such as the following, in the examples presented here as (50) and (51). The infelicity of denying the content of the CHC in (52a), but not of the *that*-clause in (52b), supports the claim that the former but not the latter is presupposed.

- (50) a. They didn't tell me [_{CHC} **how** the tooth fairy doesn't really exist].
 ⇒ the tooth fairy doesn't really exist.
 b. Did they tell you [_{CHC} **how** the tooth fairy doesn't really exist]?
 ⇒ the tooth fairy doesn't really exist. [Legate (2010: 127), ex. (17a,b)]

- (51) a. They didn't tell me [_{CP} **that** the tooth fairy doesn't really exist].
 ≠ the tooth fairy doesn't really exist.
 b. Did they tell you [_{CP} **that** the tooth fairy doesn't really exist].
 ≠ the tooth fairy doesn't really exist. [Legate (2010: 127), ex. (17c,d)]

- (52) a. # They told me [_{CHC} **how** the tooth fairy doesn't really exist], but I don't believe it.
 b. They told me [_{CP} **that** the tooth fairy doesn't really exist], but I don't believe it.
 [Legate (2010: 126), ex. (15a,b)]

⁶¹ See Munsat (1986) and Egré (2008) on this correlation. The generalisations and correlations concerning the distribution of various kinds of FCC are presented in detail in Chapter 5.

⁶² In addition to *tell*, *report* also seems to show this behaviour, as discussed by Abels (2010: 142). Abels illustrates this with the contrast shown in (i) between the non-factive *that*-clause complement in (a), and the factive resolutive interrogative complement in (b). The same point could be made by contrasting a factive *that*-clause and a CHC complement to *report* in terms of factivity.

- (i) a. The New York Times reported that Iraq had tried to buy uranium from Niger. (The report later turned out to be false.)
 b. The New York Times reported where weapons of mass destruction had been hidden in Iraq. (#The report later turned out to be false.)

What this seems to suggest then is that factivity really is a defining characteristic of CHCs. Unlike *that*-clauses, which come in two ‘flavours’, factive and non-factive (with corresponding syntactic differences, as discussed in Chapter 2), CHCs appear to remain factive even under predicates where *that*-clause complements do not receive a factive interpretation. However, the picture is not so straightforward, as there is additional data which throws into question the unwavering factivity of CHCs which I now turn to discuss.

4.4.1.2 Suspension of factivity in CHCs, DPs and exclamatives

The complicating factor is that in certain contexts, such as those illustrated in (53)-(55), the factivity of CHCs appears to be suspended, as discussed in Nye (2012).⁶³ It is clear from the general tone of the newspaper article from which (53) is drawn that the content of the *how*-clause represents exaggerated claims on the part of the EDL, and not the reality. In the final sentence of (54)), ‘the schoolboy’ explicitly expresses his doubt about the content of the *how*-clause. And in (55), the lexical content of the matrix predicate itself indicates that the content of the complement it introduces is not taken to be true.

(53) The point for your average voter is that if they see the EDL marching through their streets shouting about [CHC **how** the neighbourhood is about to be swamped by Muslims] or [CHC **how** the UK is going to be Islamified by 2040], they are also receiving these cues from other sections of British society.⁶⁴

(54) The schoolboy went on: “Politicians always seem to talk about how much they value education, [CHC **how** it’s a priority], [CHC **how** it’s safe in their hands]. Well, from where I’m standing it doesn’t look very safe at all.”⁶⁵

(55) Tony LaRussa is the same turkey that allowed steroids to run rampant in his clubhouse for decades- and stood by as McGwire lied about [CHC **how** he never used].⁶⁶

⁶³ Presupposition suspension is even less well understood than the phenomenon of factivity itself, and as with the latter concept, I concern myself with the empirical patterns which the term is used to characterise, in order to be able to compare CHCs with other complement types, and not with the underlying mechanism.

⁶⁴ From <http://www.guardian.co.uk/uk/2010/may/28/english-defence-league-protest-bnp>. Last accessed 04.08.2012.

⁶⁵ From <http://www.guardian.co.uk/education/2011/apr/25/15-year-old-speech-ema-cuts>. Last accessed 04.08.2012.

⁶⁶ From http://www.huffingtonpost.com/2010/08/27/albert-pujols-tony-la-russa_n_697019.html. Last accessed 03.08.2012.

Does this behaviour contradict the claim that in general CHCs are factive, that is to say, that their content is presupposed? Not necessarily. Note that it is not CHCs alone which show this behaviour in these contexts. Definite DPs are taken to involve a presupposition of existence and of uniqueness, as Legate (2010: 126) notes, citing Frege (1892), Russell (1905) and Strawson (1950). It is for this reason that she takes the factivity of CHCs to be an argument in favour of their DP status. Note that DPs also show exactly the same effect of suspension of the presupposition under predicates such as those found in the examples in (53)-(55): *shout about*, *talk about*, *lie about*.⁶⁷ This is illustrated by the examples in (56)-(58), which are modelled directly on those in (53)-(55), but involve DP rather than CHC complements.

(56) The point for your average voter is that if they see the EDL marching through their streets shouting about [DP **the** swamping of the neighbourhood by Muslims or the Islamification of the UK by 2040], they are also receiving these cues from other sections of British society.

(57) The schoolboy went on: "Politicians always seem to talk about [DP **the** value of education], [DP **the** fact that it's a priority and that it's safe in their hands]. Well, from where I'm standing it doesn't look very safe at all."

(58) Tony LaRussa is the same turkey that allowed steroids to run rampant in his clubhouse for decades- and stood by as McGwire lied about [DP **his never having used drugs**].

As observed by Abels (2010: 151-3), embedded exclamatives - also shown in Chapter 3, section 3.2.3.1 to be factive - display the same behaviour in similar contexts, as we see illustrated in the examples in (59) which are drawn from his work.⁶⁸ What the examples in (56)-(59) show therefore, is that the phenomenon of presupposition suspension is not particular to CHCs, but is rather characteristic of other complements which normally involve a presupposition too, such as the definite DPs and exclamatives considered here. Definite DPs and exclamatives continue to be characterised in terms of involving a presupposition, despite the fact that a small proportion of examples seem to involve the suspension of this presupposition.

Therefore there seems no reason not to take this position for CHCs too. Whatever the source of the presupposition suspension in (56)-(59), this can equally be extended to cover the

⁶⁷ Thanks to Caroline Heycock [p.c] for bringing to my attention the fact that DPs also show this behaviour.

⁶⁸ Abels (2010: 151) characterises the class as containing 'many propositional attitude verbs expressing beliefs and verbs that report speech'.

CHCs in (53)-(55). To my knowledge, no fully worked out account of this has been given (although see Abels (2010), Nye & Haegeman (2012) for discussion), and it is beyond the scope of this work to offer one here.⁶⁹

- (59) a. When one of my classmates found out which guy I was crushing on, she hooked up with him and then told him all these lies about [CP **what a** terrible person I was].
 b. People shake their heads and go on about [CP **what a** great tragedy the whole situation is]. [Abels (2010: 153), ex. (23c, d)]

There is yet another added complication, however. Note that all of the examples discussed involve CHCs as complements to prepositions.⁷⁰ As stated previously, my concern in this work is rather with the behaviour of finite clauses which are direct complements of the matrix predicate, therefore it might seem then that the phenomenon of presupposition suspension need not concern us too greatly. Yet Abels (2010: 153) provides the following additional example of presupposition suspension in an embedded exclamative under the predicate *tell*, given here as (60). Until now, it seemed that CHCs and embedded exclamatives patterned alike - both are generally factive, yet both can have their presupposition suspended in the same specific contexts. As discussed in 4.4.1.1 above, *tell* is the very predicate which Legate (2010) uses in order to illustrate the factivity of CHCs. With *tell*, however, we now appear to have a context in which whilst the CHC complement is factive (cf. (49), (50)), the presupposition in the embedded exclamative is suspended (cf. 60). What lies behind this apparently exceptional pattern?

- (60) Friends often tell me [CP **what a** wonderful cook I am] - I always tell them it is the ingredients, not my skill as a cook. [Abels (2010: 153), ex. (23a)]

Note firstly that there are in fact also cases where the factivity of a CHC complement similarly seems to be suspended under the predicate *tell*. Illustrative attested examples are provided in (61)-(63). (61) involves the speaker casting doubt on the matrix subject's claim, whilst (62) makes clear that even if the claim sometimes turns out to be true, this is certainly

⁶⁹ Abels (2010) discusses the presuppositional behaviour of embedded exclamatives in terms of the notions 'plug', 'hole' and 'filter'. Pending an account which makes clear what the theoretical status of such notions is, this seems a restatement of the empirical facts, rather than an explanation. Nye & Haegeman (2012) cast the issue in terms of the referential and non-referential distinction made by de Cuba & Ürögdi (2009a,b) and Haegeman & Ürögdi (2010a,b).

⁷⁰ For this reason, the behaviour of (factive) *that*-clauses in these contexts cannot be tested, because of the general inability of *that*-clause CPs to occur as the complement to a preposition, as discussed in 4.3.1.2 above.

not always the case. In (63) it is even clearer that the, as the speaker goes further and asserts the content of the *how*-clause to be false.⁷¹

(61) He's always telling me [_{CHC} **how** he'd never cheat on me]... it makes me wonder⁷²

(62) They're always telling us [_{CHC} **how** their act is the next biggest thing since, well, the last biggest thing I guess] and occasionally, to give them their due, they are.⁷³

(63) I feel she is in denial too as she is always telling me [_{CHC} **how** she is "great, amazing actually"] when I ask her how she is and it hurts me because I know she is in denial⁷⁴

Furthermore, there are also cases where an exclamation is embedded under *tell*, and where - in contrast to the case in (60) - it seems clear from the context that the content is presupposed. This is so for the attested examples in (64)-(65). In (64) and (65), illustrative examples of behaviour typical of being a great captain and a wonderful example to the crew in the first instance, and a cheapskate in the second are given in the examples themselves. In (66), the gratitude expressed by the speaker in the second sentence makes clear that they indeed presuppose the interlocutors mother to have done a good job (and assert that it was a particularly good job). Thus in terms of their 'mixed behaviour' with regard to their factivity under *tell* - in certain cases presupposed, in other cases not - CHCs and exclamatives in fact continue to pattern alike.

(64) When he was rescued by his ship mates they all congratulated him on his unbreakable will power and strength and told him [_{CP} **what a** great captain he was], and [_{CP} **what a** wonderful example to the crew he had set].⁷⁵

(65) How would you like it if I called them and told them [_{CP} **what a** cheapskate [sic] you were], refusing to pay me for cleaning their teeth?⁷⁶

⁷¹ Note that all of the examples in (53)-(63) involve the speaker contradicting someone else's claim. This does not appear to be a pre-requisite for the suspension of a presupposition however. Although I do not have an attested example to corroborate this, in my judgement a sentence such as (i) is felicitous, where the speaker contradicts the content of their own claim, made using a CHC.

(i) I'm always telling him [how I'll buy one off him soon], but I don't really mean it.

⁷² <http://www.sofeminine.co.uk/tests-quizzes/is-he-the-one-quiz-d26381c327595.html>. Last accessed 18.02.2013.

⁷³ From <http://www.140db.co.uk/page/17/>. Last accessed 04.06.2013.

⁷⁴ From <http://www.reddit.com/user/microsofteye>. Last accessed 18.02.2013.

⁷⁵ From <http://www.biblecodeintro.com/intro39.html>. Last accessed 19.02.2013.

⁷⁶ From <http://www.indeed.com/forum/job/dental-hygienist/WORKING-INTERVIEW-3-WEEKS-AGO-STILL-NOT-PAID/t75390>. Last accessed 19.02.2013.

(66) I told her [_{CP} **what a** good job your Mum did with the furnishings]. Please thank your Mum; she runs a mean cotton and thread⁷⁷

4.4.1.3 Factivity in CHCs - reconciling the facts

How can we reconcile the factivity of CHCs and exclamatives under *tell* in (49)-(50) and (64)-(66) respectively, and their non-factivity in (61)-(63) and (60)? One possibility is that ‘presupposition suspension’ is more than just a label for the empirical facts set out here, and that there is a mechanism - as yet not clearly understood - by which presuppositions are lost in certain specific contexts. Another possibility is that, contrary to appearances, CHCs and exclamatives are never in fact factive under the predicate *tell*. Note that there is a crucial difference between the two sets of examples. In the former cases, where the complements are factive, the matrix predicate *tell* is in the simple past tense. In the latter set, where the presupposition of the complement is suspended, *tell* occurs in the present simple or present continuous tense.⁷⁸ We could hypothesise that the present tense examples show the true colours of complements to *tell*, masked in the past tense examples by a factive-like effect which can arise - along the lines of what de Cuba & Ürögdi (2009a: 49-51) claim for certain *that*-clause complements - ‘If the discourse situation is such that the embedded proposition happens not only to be part of the contextually salient set of propositions but also turns out to be true (and its truth is known to all discourse participants)’ (de Cuba & Ürögdi 2009a: 51). That certain complement clauses which show the effects of factivity are not inherently factive is an idea which I explore further in Chapter 6.

It is worth remarking at this stage already, however, that the idea that tense and/or aspect of the matrix predicate make a difference to the (properties of the) complement clauses they embed has some plausibility. Indeed, it was noted as far back as Grimshaw (1979) that properties of the matrix clause besides the matrix predicate itself have an influence upon the kinds of complement clauses which can be embedded, an observation expanded on in more recent work by McCloskey (2006) and Turnbull-Sailor (2007).⁷⁹ One of the most widely-known cases involves *believe*, a predicate which in basic declarative form cannot embed exclamatives (cf. 67a). Upon an ‘idiosyncratic use of *believe*’ (Grimshaw 1979: 319) - the negated and modalised variants (67b) and (67c), for instance - exclamative complements are perfectly grammatical, however.

⁷⁷ From <http://www.newandusedboat.co.uk/what-our-customers-say.php>. Last accessed 19.02.2013.

⁷⁸ As part of his corpus study for French, Defrancq (2010: 94-5) investigates the influence of the tense of the matrix predicate on the possibility of occurrence of a CHC complement.

⁷⁹ Even earlier, Elliott (1974: 338-9) also provides examples which illustrate this point, even if he does not construe them in quite these terms.

- (67) a. * I believe [_{CP} **what an idiot** I've been].
 b. I can't believe [_{CP} **what an idiot** I've been].
 c. You wouldn't believe [_{CP} **what an idiot** I've been].

This is an under-studied and potentially revealing aspect of the complementation mechanism. However, it is one which I leave aside here for future research, concerning as it does the nature of the selector. My concern here is rather on characterising the selectee - defining the classes of finite clausal complement in English, providing an accurate description of their distribution, and identifying which of their properties are relevant in determining this. What should be taken away from this section is that CHCs and exclamatives hold in common the property of factivity (shared also with definite DPs). This is suspended in a small sub-set of the environments in which they can occur, for reasons which to date are poorly-understood, and which also fall beyond the scope of this study. However, crucially, these two distinct types of finite clausal complement behave the same in this regard.

4.4.2 Beyond factivity

In section 4.4.1, it was shown that the property of factivity is characteristic of CHCs. This is something they hold in common not only with the factive *that*-clauses around which most discussions of factivity have centred, but also with definite DPs and exclamatives, which similarly involve a presupposition. CHCs were shown to share the suspension of this presupposition in certain specific contexts with the latter two complement types.

It was argued at length in section 4.3 that the distributional evidence strongly points in the direction of analysing CHCs as CPs, rather than DPs, in terms of their syntactic category label. CHCs were also shown to diverge in distribution in certain contexts from (factive) *that*-clauses, a point which will be dealt with at much greater length in Chapter 5. In terms of interpretation, however, the discussion to date has focussed on the commonalities between CHCs and factive *that*-clauses. Many of those accounts which already make reference to CHCs (see section 4.2 above for discussion of the existing literature on CHCs) make an observation along the same lines of that of Legate (2010: 130), to the effect that 'Semantically, the embedded clause is complete, with no gap indicating a trace position'. This unites CHCs and *that*-clauses, to the exclusion of exclamatives, which in this chapter have been shown to hold both their distribution and the property of factivity in common. Exclamatives, however, involve *wh*-movement, and thus a 'gap'. Furthermore, as was discussed in Chapter 3, section 3.2.3.1, exclamatives have their own particular interpretation, characterised in terms of presupposition, high degree and/or surprise. Whilst there is debate about the precise details of the interpretive characterisation of exclamatives,

it is clear that CHCs do not suggest that the content conveyed holds to a high degree, or is necessarily surprising, in contrast to what has been claimed for exclamatives.

What is less immediately apparent is that CHCs also differ in interpretation to (factive) *that*-clauses, albeit in a much more subtle way. Warner (1982: 181) already notes that for Old English that ‘this use of *how* is by no means straightforwardly equivalent to *þat*’, a claim echoed more recently for Present Day English (PDE) by Legate (2010: 122), who similarly notes that ‘*how* is not a simple alternate to *that*’.⁸⁰ Intuitively, the (a) and (b) sentences in (68) and (69), whilst conveying broadly the same information, differ in nuance, with some additional interpretive effect present with the CHC. Were factivity indeed sufficient to characterise CHCs in interpretive terms, then in syntactic contexts such as (68) and (69), where both factive *that*-clauses and CHCs are possible as complements to the same predicate, the two would be expected to be interpretively equivalent, counter to fact.

- (68) a. Paul told me [_{CP} **that** he was in love with Mary].
 b. Paul told me [_{CHC} **how** he was in love with Mary].

[Warner (1982: 182), ex. (22), (23)]

- (69) a. I remembered [_{CP} **that** she used to blush whenever I said “I love you”].
 b. I remembered [_{CHC} **how** she used to blush whenever I said “I love you”].⁸¹

Despite the repeated observation of this contrast, little progress has been made in offering a precise characterisation of the ways in which CHCs differ interpretively from *that*-clauses since Warner (1982). Haegeman & Nye (2012) offer a recent preliminary exploration of this, which feeds into this section. As was made clear at the outset, my focus in this work is primarily upon the syntax of CHCs, and upon their distribution in particular. I make no claims to offering a precise semantic characterisation of these clauses, as was also the case for the other FCCs discussed in Chapter 3. The following section is primarily descriptive. This in it itself is a necessary contribution, given the absence of any such description of the interpretation of CHCs in PDE. Furthermore, what is crucial for my purposes is showing - with the help of both the existing literature, and novel data - that CHCs do differ interpretively from all of the other FCCs under consideration here, thus motivating the decision to consider them an independent type of FCC to all of those discussed date.

⁸⁰ Whilst I am in agreement with Warner on both this point, and many of the other observations he makes, discussed in section 4.4.2.1 below, the conclusion which I will draw is quite different to his own, that ‘Although clauses introduced by *how* = *þat* [CHCs - RCN] are not well classified with interrogatives semantically, they must be so regarded on distributional grounds’ (Warner 1982: 184-5).

⁸¹ From <http://www.prisonerofclass.com/love-and-other-drugs/>. Last accessed 22.02.2012.

4.4.2.1 Narrativity

CHCs have been taken to be characterised by the discourse-interpretive property of ‘narrativity’. The accounts which have discussed this have focussed on Old English (Warner 1982) and (present-day) French (Defrancq 2009), but many of the observations also seem to hold for Present Day English. On the basis of his corpus of Old English sermons, where CHCs occur under the predicates *say*, *teach* and *tell*, Warner (1982: 180) states that ‘Such a clause with these verbs can be characterised in one of three basic ways. It may contain a narrative, or part of a narrative...it may be a summary of some statement or narrative...or it may convey the meaning or interpretation of something.’⁸² The commonality which Warner (1982: 182) suggests for these uses is that ‘*how* can be appropriately used with the ‘sentence’ of what has been said “the thought or meaning expressed as distinguished from the wording; the sense, substance or gist (of a passage, a book, etc)” (OED Sentence, *sb.*7)’.

One reflex of this is that CHC does not seem to be favoured when the content of the complement clause is a verbatim report of speech. To illustrate this point, Warner (1982: 182), provides the PDE examples in (70). He notes that whereas (70a) could be a faithful reproduction of Paul’s speech in (70b) ‘the speaker can hardly be reporting Paul’s use of just the words *I am in love with Mary*...some further content to Paul’s statement is suggested, and the speaker merely reports the gist of it’ (Warner 1982: 182).⁸³

(70) a. Paul told me that he was in love with Mary.

b. Paul told me how he was in love with Mary.

[Warner (1982: 182), ex. (22), (23)]

As Warner himself notes, this interpretive distinction between CHCs and *that*-clauses is not always so clear-cut. In both Old English and in later stages of the language, there are ‘instances of *how* which seem contextually equivalent to P[D]E *that*’ Warner (1982: 185). These comments are made in reference to a particular example from his corpus, in which CHC appears to be used to introduce direct speech. Similar examples are also attested in PDE, as (71) illustrates. There is nevertheless a contrast in interpretation if *how* is replaced by *that*, as in (72). As was the case in (70), the variant with the CHC suggests that there is something more of significance to the reported utterance than the literal content. Warner (1982: 185) himself concedes that ‘many of the instances of *how* which seem contextually

⁸² It is the second of these uses in particular which Defrancq (2010: 80) focusses on in his study of what he terms ‘narrative *how*’. He states that ‘*Comment* est appelé narratif dans ces cas, parce qu’il semble résumer une série de procès faisant partie d’un récit’ [*how* is called ‘narrative’ in this case, because it seems to summarise a series of processes which make up an account - my translation [RCN]].

⁸³ Radek Šimík [p.c] makes a similar observation for (Present Day) Czech.

equivalent to PE *that* nevertheless may have carried some implication of contrast with *pat* as indicated above, and as may be found to some extent in PE.’

(71) Gordon Ramsey thinks you're a stupid fucking cunt, The Wire's Jay Landsman can't get enough clusterfucking and Jamie Oliver is always shouting **how** ‘nutmeg is fucking ace, you can fucking bosh it in a pissing curry, no bastard bother, tiger!’⁸⁴

(72) Gordon Ramsey thinks you're a stupid fucking cunt, The Wire's Jay Landsman can't get enough clusterfucking and Jamie Oliver is always shouting **that** ‘nutmeg is fucking ace, you can fucking bosh it in a pissing curry, no bastard bother, tiger!’

The particular predicates under which CHCs occur in the texts he considers, and the specific genre to which these belong perhaps have an influence in favouring a narrative interpretation in the strict sense of (a summary or interpretation of) an account of events. As has already been conveyed implicitly through the examples presented to date, and as will be discussed explicitly in Chapter 5, CHCs can occur under a wide range of predicates, not all of which are introduced by verbs of speech, under which a ‘narrative’ interpretation might be expected.⁸⁵ This suggests that the characterisation given is really to be attributed to the CHC clause itself, and not to properties of predicates such as *tell*. This is made clear by example (73), which does not involve literal narration in the way that (70) does, and yet in which a similar contrast is nevertheless present, under the matrix predicate *remember*. Whilst (73a) involves the simple recollection of the fact of her blushing, (73b) suggests that what is recalled is not only this simple fact, but also additional details or particular idiosyncrasies of this blushing.

- (73) a. I remembered [_{CP} **that** she used to blush whenever I said “I love you”].
b. I remembered [_{CHC} **how** she used to blush whenever I said “I love you”].⁸⁶

4.4.2.2 Reactivation and elaboration

That the particular interpretive effect noted for CHCs is present under predicates such as *remember*, as well as those such as *tell*, suggests that the characterisation of the possible functions which Warner identifies for CHCs should be broadened to reflect the fact that their use is not always strictly narrative. Whilst there are examples such as (74) from PDE which attest to the fact that CHCs can still serve the function of ‘a narrative, or part of a narrative’ (Warner (1982: 180)), where the series of *how*-clauses conveys the content of the expected narrative, and cases such as (75), where the content of the *how*-clause indeed seems

⁸⁴ <http://www.stevecharnock.com/swearing-on-tv-what-the-fuck/>. Last accessed 06.06.2013.

⁸⁵ Warner (1982: 185) does in fact list a broader range of predicates which could embed CHCs in Old English, although he does not discuss the interpretive properties of such examples.

⁸⁶ From <http://www.prisoneroftclass.com/love-and-other-drugs/>. Last accessed 22.02.2012.

to be ‘a summary of some statement or narrative’ (Warner (1982: 180)), which is then elaborated upon in the quotation which follows, there are also cases such as (76). Embedded under the predicate *remember*, the CHC is not the summary of a narrative as such, but it has as similar effect in alluding to additional details pertaining to the summarised content. Note the contrast with the pragmatically odd (77), where a *that*-clause is substituted for the CHC. This is despite the fact that, as (73a) shows, CHCs are able to be embedded under *remember*. (77) is an incitement to call the information contained in the *that*-clause to mind. The pragmatic oddness can be attributed to the fact that such a note has already served the purpose of doing precisely this. (76) rather involves what might be termed re-activation - it serves as a reminder of familiar, contextually-relevant information.⁸⁷ If factive *that*-clause present a(n often familiar) fact, CHCs in addition reactivate for their current relevance not only the fact itself, but in addition a multitude of sub-events and related circumstantial details which make up and pertain to the fact itself, and it is these which the workers are incited to keep in mind, not the basic fact itself.⁸⁸

- (74) No doubt we'll hear over the next few days [**how** Cameron doesn't really think like that at all]. We'll probably be fed stories about [**how** both his mother and his wife have had an enormous influence on his life], and about [**how** he truly believes that women are just as capable as men at doing all kinds of things,

⁸⁷ Thanks to Liliane Haegeman [p.c] for the suggestion of this characterisation, and for discussion on this point.

⁸⁸ A context where the ‘reactivation’ function of CHCs seems particularly clear is in cases such as (i) (under the predicate *remember*) and (ii) (under *know*). Here the purpose of the *how*-clause seems to be to reactivate a contextually relevant fact which is (treated as) part of the common ground, in preparation for some kind of expansion upon this content. In such instances, it is not the *how*-clause itself which elaborates on this fact, but the following sentence, whether this takes the form of a declarative (cf. ia, iia), an imperative (cf. ib) or an interrogative (cf. iib). I set these cases aside, as they seem to constitute a specific structure which differs in certain regards to the standard ‘matrix predicate + CHC’ cases considered in the body of the text. Only a restricted range of predicates seem able to serve in this particular structure, which has its own particular properties: exceptionally, the auxiliary *do* is obligatorily absent in what appears to be an interrogative, and the subject (where overt) is obligatorily the 2nd person pronoun *you*. Such cases receive further attention in footnote 118.

(i) a. So, remember [how the other day we were at Enid’s with the Beebs]? Well, so was a photographer for *The New York Times*.

From <http://ohbebia.tumblr.com/post/40338127896/so-remember-how-the-other-day-we-were-at-enids>. Last accessed 24.02.2012.

b. Remember [how great Adobe Flash used to be]? Meet the guys who invented it in 1993

From <http://bgr.com/2012/07/17/adobe-flash-history-inventors-apple-iphone/>. Last accessed 24.02.2012.

(ii) a. You know how the ALA is all “banned books” and “dangerous books?” Well, here’s a *really* dangerous book.

From <http://amywelborn.wordpress.com/2009/09/30/you-know-how-the-ala-is-all-banned-books-and-dangerous-books/>. Last accessed 04.06.2013.

b. You know how 2 planets collided to make Earth, Did those planets have names?

From <http://au.answers.yahoo.com/question/index?qid=20100703002327AA6zyHa>. Last accessed 04.06.2013.

including holding down high-powered jobs and representing their constituents' best interests in the Commons].⁸⁹

- (75) Luke Tubbs told [**how** a witness ran to his house in shock and screaming for help]: 'He just saw a big splash and then the shark roll over in the water with the guy and then [he saw] no body or anything...'⁹⁰
- (76) A note on a bathroom door in the Chicago headquarters warned workers to remember [CHC **how** – when they were on a high after winning the Iowa caucuses – Hillary Clinton had shocked them with a primary victory].⁹¹
- (77) # A note on a bathroom door in the Chicago headquarters warned workers to remember [CP **that** – when they were on a high after winning the Iowa caucuses – Hillary Clinton had shocked them with a primary victory].

We also find attested examples from PDE of the third and final interpretive function which Warner (1982: 180) identifies for CHCs: they may still 'convey the meaning or interpretation of something', as the examples in (78) and (79) illustrate. Perhaps unsurprisingly, such interpretations are favoured under predicates such as *demonstrate* and *explain*.

- (78) Your story simply demonstrates [**how** an unhealthy obsession with school testing means that the media are now ready to blame it for any problem – whatever the facts].⁹²
- (79) He explains to me [**how** many amusics take no pleasure from music, some even finding it painful or uncomfortable].⁹³

Note that these cases suggest not so much the reactivation of information in the common ground, but rather its elaboration. We see this also in the example in (80), where the CHC serves to elaborate on the topic introduced in the bold-faced title. At the same time, it also serves as a summary of the news story which will be presented at length in the rest of the article, so the discourse functions discussed here are not necessarily distinct. The elaborating function of CHCs is demonstrated even more clearly when they occur not as complements to a matrix predicate, but in a paratactic use, as illustrated in (81) and (82). Whether explicitly through elaboration, or implicitly, through reactivation of contextually

⁸⁹ <http://www.guardian.co.uk/commentisfree/2011/apr/27/cameron-calm-down-dear-sexist-put-down>. Last accessed 06.06.2013.

⁹⁰ Guardian 29.12.8 p.8 cols. 3-5.

⁹¹ From *The Wall Street Journal* 06.11.2008, p.17, col 4.

⁹² From *The Independent* 27.2.8 p. 32 col. 4.

⁹³ From *The Guardian*, G2, 25.7.7 page 26 col 1.

accessible information relating to the fact presented, CHCs convey something additional to the basic fact of a factive *that*-clause complement.

(80) **BBC apologises to Queen for revealing private conversation about Abu Hamza**

Security correspondent told [how Queen lobbied home secretary to secure arrest of Islamist cleric]⁹⁴

(81) She'd heard the stories so often that she knew them by heart, could repeat them if she wanted, sometimes even dash in a detail or two neglected in the retelling; [**how** (for instance) she and Harriet had used pink blossoms fallen from the frost-bitten crabapples for the snow bunny's nose and ears].⁹⁵

(82) She relished his great sea-faring lies: [**how**, in the moonlight, he had mistaken sea cows for mermaids]; [**how** he and many of his crew had watched the sunset over the Pacific form into a vast crucifixion scene], the oddly contorted violet clouds against the blood-red, and eastwards the sky a clear pistachio with one pale star.⁹⁶

4.4.3 Interpretive properties of CHCs: conclusions

In the course of this section, both the semantic and discourse-interpretive properties of CHCs were considered. In section 4.4.1, CHCs were shown to be factive complement clauses, like factive *that*-clauses and exclamatives. Effects of presupposition suspension which at first sight seem to run counter to such a claim were shown in fact to offer support for such a view. Despite this commonality, it had already been observed that although CHCs are similar in interpretation to factive *that*-clauses, they are not strictly equivalent in interpretation. Further support for this position was given from cases where substituting a *that*-clause complement for a CHC gives rise to pragmatic oddness.

In terms of characterising this interpretive distinction, previous work has discussed the 'narrative' effect of CHCs. Having reviewed this in section 4.4.2.1, in section 4.4.2.2, I suggested that the specific interpretation of CHCs could be better construed in terms of 'reactivation' and 'elaboration' of the presupposed content. That the presence of this effect

⁹⁴ From <http://www.guardian.co.uk/media/2012/sep/25/bbc-apologises-queen-abu-hamza>. Last accessed 24.02.2013.

⁹⁵ From Donna Tartt, *The Little Friend*, p.23.

⁹⁶ From Elizabeth Taylor, *A View of the Harbour*, 1947, Vintage 1987, 2000: 136.

in CHCs is found in a wide range of embedding contexts suggests that this is indeed characteristic of the interpretation of these complement clauses themselves. This remains of course an informal attempt at describing the interpretation of CHCs. There is much more which still needs to be established and formalised concerning their semantic and discourse properties. However, this task lies beyond the scope of this primarily syntactic work. Here I have provided a preliminary sketch of the interpretive properties of CHCs, which I hope to expand upon in future work. Nevertheless, even this brief introduction serves to identify key aspects of their interpretation and, most importantly, highlights the fact that CHCs differ in interpretation to all other English FCCs which have been identified to date. Unsurprisingly, given the findings of Chapter 3, they also show their own distinct combination of syntactic properties, as will now be made clear in section 4.5 below.

4.5 Syntactic properties of CHCs

In section 4.3 above, the status of CHCs as clausal complements was motivated. Although their interpretive and discourse properties have now been discussed in quite some depth, as yet, little has been said about the internal syntactic properties of these clauses. In the remainder of this chapter I focus on precisely this, offering the first detailed analysis of CHCs as clausal complements (Legate's (2010) analysis of CHCs as DPs is discussed in section 4.5.1 below). On the basis of certain of their core syntactic properties, in section 4.5.1, I motivate an analysis of CHCs as CP complements with *how* as a *wh*-complementiser base-generated high in the clausal left periphery. As was noted in the introduction to this chapter, despite the fact that in interpretation CHCs, are closest to declarative *that*-clauses, they bear a close surface resemblance to other more well-studied *wh*-clause complements, such as interrogatives and exclamatives. Postulating (in line with Warner (1982), but contra Willis (2007), and van Gelderen (2009)) that despite having undergone reanalysis from specifier to head position, *how* in CHCs remains a *wh*-expression, this allows certain similarities which CHCs display to (embedded) exclamatives and interrogatives to be captured. The absence of *wh*-movement is a unifying property of CHCs and *that*-clauses, which accounts for properties held in common by these FCCs to the exclusion of exclamatives and interrogatives.

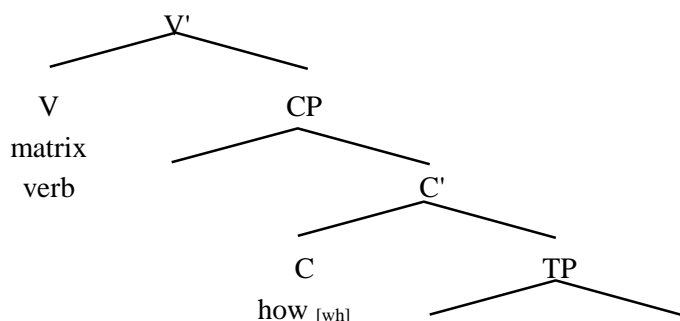
In section 4.5.2, I consider the behaviour of CHCs with regard to an even broader range of syntactic properties, drawn from those listed in Chapter 3, section 3.4, Table 7. These were previously used to compare the five types of FCC introduced previously, and in section 4.6 allows CHCs to be considered in the context of the other FCCs under consideration in this work. I provide the most detailed picture of the syntax of CHCs which has been offered to date. What emerges from the discussion is that CHCs show a unique range of properties,

different to any of the existing types of FCC discussed in Chapter 3. Many individual properties are held in common with other clause-types, but it is the combination of these which are characteristic of FCCs alone. My goal at this stage is not to account for every last intricacy in the behaviour of CHCs, but rather to show that, together with their characteristic interpretation, the unique syntactic ‘fingerprint’ of CHCs motivates the decision to consider them as an additional independent kind of FCC, deserving of their position in the typology of embedded clause-types established here.

4.5.1 An analysis for CHCs⁹⁷

Two clear syntactic properties of CHCs have already been established in the course of section 4.3. The first is that they are indeed clausal complements. The second is that, more specifically, they are *wh*-clause complements. Given the detailed distributional evidence already brought in favour of this view, these aspects of the analysis will not be discussed in detail here, although in section 6.2.2 I will refine the conception of what it means for a clause to be a *wh*. The structure that I propose for a CHC is represented below in (83). In the following sub-sections, I motivate the various components of this analysis in turn. In section 4.5.1.1, I provide further evidence that despite its complementiser(-like) function, *how* in CHCs remains a *wh*-expression in a syntactically relevant sense. I contrast its distribution with that of Hungarian declarative complementiser *hogy*, which similarly developed from the *wh*-expression *how* but which is no longer synchronically a *wh*-expression, as can be seen by the differences in distribution between English CHCs and Hungarian *hogy*-clauses. In section 4.5.1.2, I discuss the evidence which Legate (2010) provides to demonstrate that *how* is generated in the clausal left periphery of a CHC, and add further corroborating evidence of my own, before in section 4.5.1.3 discussing facts which show specifically that the position occupied by CHC is a head position. These elements combine to give the specific structural implementation illustrated in (83).

(83) My proposed structure for a CHC-complement to a matrix verb

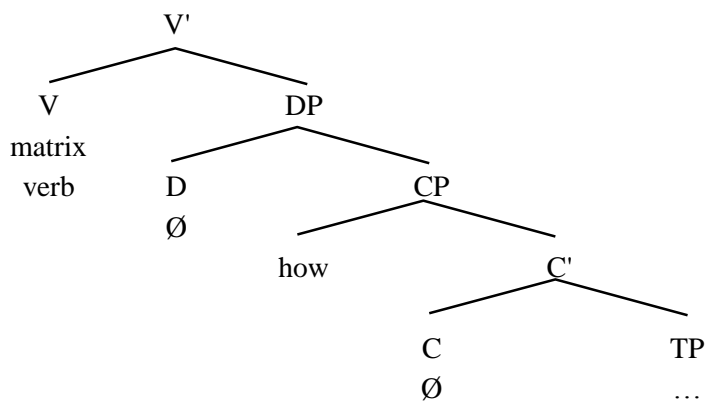


⁹⁷ I am grateful to Jeroen van Craenenbroeck for discussion of much of the material presented in this section. I bear sole responsibility for the use to which I put it.

...

Before I turn to a detailed motivation for the properties of the structure presented here, I first compare my own proposal with the structure which Legate (2010: 131) puts forward for CHCs, presented here in (84). As already noted, the main point of contrast between our accounts is that Legate takes CHCs to have the categorial status DP, whilst I argue in favour of their CP status. Legate (2010: 130) observes that under conception of the structure, ‘the *how*-clause closely resembles [sic] a free relative’, albeit one lacking in *wh*-movement. I discuss Legate’s arguments for the view that complementiser *how*, unlike the *wh*-expressions in most interrogative and exclamative structures, does not move from a position lower in the clause but ‘is base-generated in its surface position’ (Legate 2010: 131) in the clausal periphery in section 4.5.1.2., as this is an aspect of her analysis which is held in common with my own. One aspect of Legate’s analysis which she does not provide motivation for, beyond the comparison drawn with free relatives, is the decision to analyse *how* as a *wh*-phrase occupying spec-CP rather than as a C head. Although it is difficult to find conclusive evidence, I suggest that the facts point rather in the direction of complementiser *how* being a realisation of the C head. This is in fact the position taken by Willis (2007) and van Gelderen (2009), who treat complementiser *how* as a case of the more general grammaticalisation pathway of spec-to-head reanalysis in the clausal domain.

(84) Legate’s (2010) structure for a CHC-complement to a matrix verb [Legate (2010: 131), ex. (27)]



4.5.1.1 CHCs as *wh*-clauses

In section 4.3.1, the ability of CHCs to show certain apparently DP-like properties - the fact that they are able to occur as the complement to prepositions, for instance - was attributed rather to their status as *wh*-clauses. In this section, I provide additional support in favour of the view that CHCs are *wh*-clauses. This is necessary, given that in the accounts of Willis (2007) and van Gelderen (2009), the reanalysis which *how* is proposed to have undergone, from phrase occupying spec- CP to C head, is claimed to be accompanied by loss of its *wh*

status. My own account is a departure from these works in suggesting that even though *how* is synchronically to be analysed as a C head, it nevertheless retains its *wh*-status. This is the view also of Warner (1982: 184-5), who states that '[a]lthough clauses introduced by *how* = *pat* [i.e. complementiser *how* - RCN] are not well classified with interrogatives semantically, they must be so regarded on distributional grounds. There is certainly no syntactic reason to posit a [-WH] complementizer *how*'. In this section I focus upon such distributional grounds for viewing *how* as a *wh*-expression. In section 4.5.1.3 I provide synchronic evidence which supports the idea of complementiser *how* as C head.

Willis' (2007: 434) claim that '*how* has been partially reanalysed as a general subordinating complementizer head, and hence [is] used in (non-*wh*) complement clauses to verbs of saying and knowing' is echoed by van Gelderen (2009: 144), when she states that *how* 'is now being used as a complementiser head and no longer as a *wh*-element in a specifier position'. Given that most verbs of saying and knowing - including those in the illustrative examples of CHCs such as (85) and (86) which Willis (2007: 434) provides - permit *wh*-clause complements as well as *that*-clause complements, it is not clear how the occurrence of CHCs under such predicates constitutes evidence in favour of the view that these are non-*wh* complements. (87) and (88) provide attested examples of both exclamative (*wh*-clause) and *that*-clause (non *wh*-clause) complements under *tell* and *explain*, the predicates used in Willis' (85) and (86).

- (85) Dwyer told the players how he wanted to win the two-match series against Scotland and how he not only wanted to reclaim the Bledisloe Cup from the All Blacks but complete Australia's first ever 3-0 series whitewash. (British National Corpus, CB2 1468) [Willis (2007: 434), ex. (4a)]

- (86) I explained quickly about Sal's hospitalization and how we wanted someone to keep an eye, or an ear, open for Frank. (British National Corpus, HWL 36) [Willis (2007: 434), ex. (4b)]

- (87) a. He's told me [what a deadweight you were to him].⁹⁸
b. He's told me [that you're now senior partner of Far East Swift...].⁹⁹

⁹⁸ From the BNC. *A little lower than the angels*. McCaughrean, Geraldine. Oxford: OUP. Last accessed 16.09.2013.

⁹⁹ From the BNC. *Ungoverned passion*. Holland, Sarah. Richmond, Surrey: Mills & Boon, 1993. Last accessed 16.09.2013.

- (88) a. They explained [what a great owner you are]...¹⁰⁰
 b. He explained [that he was training to be a teacher in Bechar, a large town a little north of where I had begun walking].¹⁰¹

The CP status of CHCs was established by showing that CHCs are possible in certain contexts where CPs are permitted and DPs excluded, and conversely by demonstrating that they are excluded from contexts where DPs are permitted and yet CPs excluded. Similarly, the status of CHCs as *wh*-clauses can only be corroborated by considering their behaviour in contexts where *wh*-CPs are permitted and non-*wh*-CPs excluded, and where *that*-clauses are possible and other *wh*-clauses excluded. The predicates in (89) and (90) provide just such contexts. *Describe*, *detail* and *discuss* accept exclamative (a) and resolute (b) complements, but not *that*-clause complements (c). *Sorry*, *happy* and *glad* conversely disallow exclamative (a) and resolute (b) complements, but permit *that*-clause complements (c).

- (89) a. We described/detailed/discussed [what a dreadful experience it was].
 b. We described/detailed/discussed [where they had fled from].
 c. * We described/detailed/discussed [that it was a dreadful experience].
- (90) a. * We are sorry/happy/glad [what a dreadful experience it was].
 b. * We are sorry/happy/glad [where they had fled from].
 c. We are sorry/happy/glad [that it was a dreadful experience].

If CHCs are non-*wh*-clauses, as Willis (2007) and van Gelderen (2009) claim, then they should distribute like *that*-clauses, and be possible under the latter class of predicates but not the former. What we see is the converse. CHCs distribute rather like the exclamative and resolute *wh*-clauses, in being acceptable under *describe*, *detail* and *discuss* (91), but not under *sorry*, *happy* and *glad* (92). These distributional facts are paid more attention in Chapter 5, where the distribution of FCCs is considered in detail, but here they serve to make the point that CHCs distribute as *wh*-CPs rather than as non-*wh*-CPs.

- (91) We described/detailed/discussed [how they couldn't return home].

- (92) * We are sorry/happy/glad [how they couldn't return home].

Corroboration for this view comes from the contrast between the distributional behaviour of English CHCs and that of *hogy*-clauses in Hungarian. *Hogy* also has its origins in the *wh*-

¹⁰⁰ From <http://www.ezlube.ca/about-us/customer-testimonials>. Last accessed 16.09.2013.

¹⁰¹ From the BNC. Wheelbarrow across the Sahara. Howard, Geoffrey. Gloucester: Alan Sutton Pub. Ltd, 1990. Last accessed 16.09.2013.

expression *how* (also *hogy* in Present Day Hungarian), but synchronically functions as the standard declarative complementiser, equivalent to English *that*. Like English *that*-clauses, and unlike English CHCs, *hogy*-clauses are not restricted to occurring in contexts in which *wh*-clauses are acceptable. This is illustrated in (93).¹⁰² *Hogy*-clauses are permitted under the predicate *convinced* (cf. 93a), a context where *wh*-clause complements such as interrogatives are impossible (cf. 93b).¹⁰³ The Hungarian patterns show the behaviour expected if specifier to head reanalysis of *how* in English has similarly been accompanied by loss of the *wh*-feature. The crucial contrast between Hungarian *hogy*-clauses and English CHCs is illustrated by the difference in grammaticality between (93a) and (94c). The English predicate *convinced*, like its Hungarian equivalent, permits *that*-clause complements (cf. 94a) but not interrogatives (cf. 94b). Yet CHCs are excluded (94c). There can therefore be little doubt that English CHCs remain *wh*-clauses.

- (93) a. Meg vagyok győződve (arról) [hogy haza akar menni].
 PV am convinced expl.about [that homewant.3SG go.inf]
 ‘I’m convinced that she wants to go home.’
 b. * Meg vagyok győződve (arról) [hogy hova akar menni].
 PV am convinced expl.about [that where want.3SG go.inf]
 ‘I’m convinced as to where she wants to go.’
- (94) a. I’m convinced [that she wants to go home].
 b. * I’m convinced [where she wants to go].
 c. * I’m convinced [how she wants to go home].

4.5.1.2 *How* is base-generated in the clausal left periphery

Having established that CHCs are not just clausal complements but, more specifically, *wh*-clauses, I now turn my attention to their internal syntactic properties. In this section, I present evidence in support of the view that *how* is merged directly in the clausal left periphery, rather than raising there from a position lower in the clause, as is the case for the *wh*-expressions which introduce in the interrogative and exclamative (complement) clauses to which CHCs show a surface similarity. Whilst the accounts of CHCs given to date all assume this, only Legate (2010: 130) makes the point explicitly (‘In a *how*-clause, I find no evidence for movement of *how*’) and provides arguments in support of it. The first of these is that ‘semantically, the embedded clause is complete, with no gap indicating a trace position’ (Legate 2010: 130). Whilst intuitively this seems to be true, we would like to have a more objective and replicable means of diagnosing an absence of *wh*-movement. Legate

¹⁰² Thanks to Adrienn Jánosi [p.c] for providing the Hungarian examples.

¹⁰³ Hungarian permits ‘doubly-filled COMP’ i.e. the co-occurrence of the declarative complementiser and a *wh*-expression in the left periphery of the same clause.

(2010: 130) additionally offers two syntactic diagnostics. The first of these is that '[a]dditional layers of embedding do not produce any ambiguity indicative of possible movement from an embedded clause' (Legate (2010: 130)). I postpone discussion of this point until section 4.5.1.3, as this provides support not only for the view that CHC is externally merged in the clausal left periphery but for the more specific point that CHC is base-generated in a left peripheral head position in particular. In this section I expand upon the second of the syntactic arguments she offers in favour of the view that *how* in CHCs is externally merged in the left periphery: 'weak islands produce no degradation' (Legate 2010: 130).

Negative islands arise in contexts where a negative operator intervenes between a moved *wh*-expression and the position in which it originates, thus preventing the successful establishment of a relationship between the *wh*-expression and a lower copy/trace (see e.g. Ross 1984, Rizzi 1990, Rooryck 1992, Starke 2001). My concern here is not in choosing between different analyses of negative islands, but rather in the empirical contrast between cases such as (95) and (96). The grammatical (95), involving extraction of *how* from a non-factive *that*-clause, is rendered ungrammatical by the addition of negation intervening between the launch site and landing site of *how*, giving (96).¹⁰⁴

- (95) How do you believe [**that** I selected the article ~~how~~]?
 (2b)] [Rooryck (1992: 343) ex.

- (96) * How don't you believe [**that** I selected the article ~~how~~]?
 (3b)] [Rooryck (1992: 343) ex.

A similar contrast holds in embedded interrogative clauses, both true interrogatives and resolutives. (97) illustrates the former, where the grammatical (97a) contrasts with the ungrammatical (97b). where *how* cannot escape the negative island. In contrast to (96), this case involves *wh*-movement within the embedded clause. The effect is the same however: negation intervenes for *wh*-movement, rendering the otherwise grammatical example ungrammatical.

¹⁰⁴ As Rooryck (1992: 343) observes, there appears to be an adjunct vs. argument contrast when it comes to extraction from negative islands. When the *wh*-phrase extracted is an argument, whether subject (ia) or object (ib), then a negative island gives rise at worst to mild degradation (iia, b). As (interrogative) *how* - the point of contrast with complementiser *how* - is always an adjunct, this distinction is not relevant for present purposes.

- | | |
|---|--------------------------------|
| (i) a. Who do you believe likes this book? (=Adams 1985:(4a)) | [Rooryck (1992: 343), ex (2a)] |
| b. Which article did you believe that I selected? | [Rooryck (1992: 343), ex (2c)] |
| (ii) a. (?) Who don't you believe would like this book? | [Rooryck (1992: 343), ex (3a)] |
| b. (?) Which article didn't you believe that I selected? | [Rooryck (1992: 343), ex (3c)] |

- (97) a. I asked [**how** he intends to go to the party ~~how~~].
 b. * I asked [**how**he doesn't intend to go to the party ~~how~~].

The example in (98) is similar, but in this instance the *how*-clause complement is ambiguous between an resolute interrogative reading, paraphrased in (i), and a CHC reading, paraphrased in (ii). In (99), which differs only from (98) in the presence of negation within the embedded clause, although the string remains grammatical, the only reading possible is that of a CHC. The resolute reading is impossible, because negation intervenes for *wh*-movement, just as it does in (97b). (100) and (101) are attested examples providing further illustration of the grammaticality of CHCs containing negation. The contrast in grammaticality between (string-identical) (resolute) interrogatives and CHCs containing negative islands is indicative of a structural distinction between two types of clause. The absence of an intervention effect in the CHC case is explained if, in contrast to interrogative *how*, complementiser *how* does not undergo movement to the clausal left periphery, but is base-generated in this position.

- (98) I know [**how**he intends to go to the party].
 (i) I know by which means (e.g. of transport) he intends to go to the party.
 (ii) I know that he intends to go to the party.
- (99) I know [**how**he doesn't intend to go to the party].
 (i) * I know the means (e.g. of transport) by which he doesn't intend to go to the party.
 (ii) I know that he doesn't intend to go to the party.
- (100) His folks hated his long hair though. His father, especially, grumped about hair in the bathroom and [**how**he couldn't tell if his son was a boy or a girl from behind].¹⁰⁵
- (101) When Erlendur arrived at the office, Elinborg and Sigurdur Oli sat down with him and told him [**how**they had learned nothing more from the present owners of Robert's chalet].¹⁰⁶

This is not the only explanation imaginable. We cannot rule out with certainty the possibility that complementiser *how* does undergo movement, but from a launch site higher than negation, thus avoiding any intervention effect. Another possibility is that *how* has enriched feature content, such that it can cross negation without this acting as an intervener. However, in the absence of any positive evidence that complementiser *how* undergoes

¹⁰⁵ Carol Shields 'Larry's Party' (2006), London: Harper Perennial (first publ. UK 1997) p.244.

¹⁰⁶ Arnaldur Indridason, *Silence of the Grave*, tr: Bernard Scudder 2005 Vintage 99.

movement, or at any point in the derivation occupies a position in the clause anywhere other than in the left periphery, the most plausible account is that complementiser *how* is base-generated within the clausal left periphery.

4.5.1.3 Complementiser *how* is a head

Legate (2010) analyses complementiser-*how* as a *wh*-phrase occupying the specifier position of CP, in line with the ‘COMP analysis’ of free relatives (as opposed to the ‘head analysis’; see Groos & Van Riemsdijk (1981) for discussion of the distinction, and for arguments in favour of the former). The head of the CHC structure is thus not complementiser-*how* itself, but the null definite D which heads the DP projection above the CP. The status of a CHCs as CP rather than a DP complement has already been demonstrated. However, this leaves open the question of whether complementiser-*how* occupies spec-CP à la Legate, or whether it could itself be the head of CHC. As noted above, Willis (2007: 434) and van Gelderen (2009: 144) treat complementiser-*how* as a C head synchronically in English, but correlate this with loss of its *wh*-status. Given that in section 4.5.1.1 complementiser *how* was shown to be a *wh*-expression in present-day English, what is the evidence that complementiser *how* does indeed occupy C°, as I propose in (83), rather than spec-CP? Note that beyond an intuitive interpretive parallel with *that*-clauses, neither Willis (2007) nor van Gelderen (2009) provides evidence in support of their view that complementiser *how* occupies a head rather than a specifier position. Melvold (1991: 116 f.n. 17) similarly suggests that complementiser *how* the [+definite] head of CP, but again does not provide support for this view.

It is in fact difficult to find conclusive evidence to determine the issue. In what follows, however, I provide two novel arguments in favour of the view that complementiser *how* is the *wh*-head of the CP. The first is based on the inability of complementiser *how* to be extracted from a lower clause into a higher clause, a fact already noted by Legate (2010: 131).¹⁰⁷ The second involves the inability to sluice (i.e. elide) the TP-complement to

¹⁰⁷ Legate (2010: 131) takes the grammaticality of examples involving multiple levels of embedding, such as (i) as additional evidence in support of the view that complementiser *how* is merged directly in the clausal left periphery, noting that there is ‘no ambiguity indicative of possible movement from an embedded clause’ (Legate 2010: 130). Firstly, however, she does not elaborate on the nature of the ambiguity that would be expected in these particular examples. Secondly, and more generally, the question of whether a *wh*-expression can move from a lower clause to a higher clause does not necessarily bear on the issue of whether or not this *wh*-expression has moved within a single clause to reach its landing site in the left periphery. Shlonsky & Soare (2011) analyse *why* as being merged low in the clausal left periphery. Yet from this position it can move on to a higher position in the left periphery of the embedded clause, and potentially on to the left periphery of a higher clause still. This is the case for the (b) reading of examples such as (ii).

complementiser *how*. Whilst the data involved differs, the logic of the argument is the same in both cases. I take an example of syntactic behaviour which is deemed typical of a *wh*-expression in a specifier position. I demonstrate its absence in the case of CHCs. I corroborate the view that this is to be attributed to the fact that *how* occupies the C head position rather than spec-CP, and not to other independent factors.

(A) No long-distance extraction of complementiser *how*

It has long been observed that in addition to the short *wh*-movement from a position lower in the clause to the clausal left-periphery which has been observed for *wh*-phrases (cf. (102)), in certain cases *wh*-phrases can undergo successive cyclic raising into spec-CP of a higher clause, via spec-CP of the lower clause (see e.g. Chomsky (1973)). Such cases of long-distance extraction, illustrated in (103), are possible providing that there are no independent constraints on *wh*-movement, for instance an island configuration. A string such as (104) is thus ambiguous between two readings: a short construal (a), questioning the manner of the telling, which arises when *how* originates in the matrix clause, and a long construal (b), questioning the manner of the swimming, which arises when *how* originates in the embedded cause. If complementiser *how* is a *wh*-phrase, then it might be expected that it too can undergo long-distance extraction, and that similar cases of ambiguity might arise.

(102) What had John been thinking ~~what~~?

(103) a. How did Sheila tell you [_{CP} ~~how~~ that John had swum ~~how~~]?
 b. What did Sam believe [_{CP} ~~what~~ that Sheila told you [_{CP} ~~what~~ that John had been thinking ~~what~~]]?

(104) How did Sheila tell you [that John had swum]?
 a. How did Sheila tell you? [short construal]
 b. How did John swim? [long construal]

-
- (i) a. They told me [**how** they think [you worded the letter properly]]. [Legate (2010: 131), ex. (26c)]
 b. They told me [**how** they don't think [you worded the letter properly]]. [Legate (2010: 131), ex. (26d)]
 (ii) Why do you believe that he's leaving?
 a. What is the reason for your belief?
 b. What is the reason for his leaving?

Testing this requires constructing a suitable context in which long-distance extraction of CHCs could plausibly have taken place.¹⁰⁸ Such a context is provided in (105). The surface position of CH is at the left edge of the highest of the two embedded clauses. There is no overt element introducing the lower embedded clause. The structure underlying (105) could thus potentially be either as in (106) where complementiser *how* is merged in the higher embedded clause, and the lower embedded clause is introduced by a null complementiser, or as in (107), where complementiser is externally merged at the left edge of the lower embedded clause, but raises and is re-merged at the left edge of the higher embedded clause, leaving a phonologically null copy in the lower clause.

(105) Sheila told me [_{CP} how John had been thinking [_{CP} ____ he was crazy]].

(106) Sheila told me [_{CP} how John had been thinking [_{CP} Ø he was crazy]].

(107) Sheila told me [_{CP} how John had been thinking [_{CP} ~~how~~ he was crazy]].

How can we determine which of the configurations, (106) or (107), underlies (105)? As (108) and (109) show, both a CP complement introduced by a null complementiser and a CHC are acceptable as the complement to the predicate in question, so in principle either could be the source.¹⁰⁹ However, there is a crucial, though subtle, interpretive difference between the two. The null complementiser variant in (108) does not entail the truth of the propositional content of the complement clause, as (110) notes. The interpretation of the matrix predicate is something close to ‘held the (mistaken) belief’ or ‘was labouring under the misapprehension’. Thus it is felicitous if John’s belief is false, as the examples in (111) make clear. What’s more, it is in fact only felicitous if it concerns a belief not corroborated as fact, as we see from the pragmatic oddness of (112).

(108) John had been thinking [_{CP} Ø he was crazy].

¹⁰⁸ I am grateful to Jeroen van Craenenbroeck for his help in identifying suitable configurations to test the possibility of long distance extraction of complementiser *how*.

¹⁰⁹ Note that whilst this is the case with the particular tense and aspect in the example in question, in the simple present or past tense, *think* does not permit *wh*-complements, as we see from the cases in (i). The fact that complementation possibilities are determined by properties of the matrix clause beyond simply the matrix predicate was observed in section 4.4.1.3 above. This was noted already by Grimshaw (1979), and is discussed further by McCloskey (2006) and Turnbull-Sailor (2007), although it remains an under-researched topic. Here I am interested in the particular configuration in (105) only in so far as it serves as a diagnostic to distinguish complement clauses.

(i)	a. * I think [how he didn’t arrive on time].	[* <i>think</i> + CHC]
	b. * I think [why he left].	[* <i>think</i> + interrogative]
	c. * I think [what a lot of progress he made].	[* <i>think</i> + exclamative]

(109) John had been thinking [_{CP} how he was crazy]

(110) John had been thinking he was crazy. \nRightarrow John was crazy

(111) a. John had been (mistakenly) thinking he was crazy.

b. John had been thinking he was crazy. But in fact he was perfectly sane.

(112) John had been thinking he was crazy. # You see, he knew he was crazy.

This contrasts with the variant in (109) in which the lower clause is a CHC. Here there is a truth entailment to the effect that John is crazy. In this context the interpretation of the matrix predicate is something close to ‘was reflecting upon the fact that’. The fact that this truth entailment holds under negation and when questioned shows that we are dealing not just with a truth entailment, but a factive presupposition (see discussion in section 4.4.1 above. This is corroborated by examples such as (114) - expanding the linguistic context to explicitly suggest that John’s belief is false results in pragmatic oddness. Suggesting that John’s belief corresponds to fact, on the other hand, is perfectly felicitous (115)

(113) a. John had been thinking how he was crazy. \Rightarrow John was crazy

b. John hadn’t been thinking how he was crazy. \Rightarrow John was crazy

c. Had John been thinking how he was crazy? \Rightarrow John was crazy

(114) a. John had been (# mistakenly) thinking how he was crazy.

b. John had been thinking how he was crazy. # But in fact he was perfectly sane.

(115) John had been thinking how he was crazy. You see, he knew he was crazy.

We can exploit this distinction to prove that (108) rather than (109) is the structure underlying (105), by constructing examples where there is not only a distinct interpretation depending on whether we have the null complementiser or the CHC variant, but also a difference in terms of the felicity of the examples. Let us consider first the null complementiser case. Let’s make the uncontroversial assumption that in the world in question, John is a man and is aware of this fact. With this as background, (116) although suggesting that John is delusional, is in no way linguistically or pragmatically odd. (117) on the other hand is, for the same reason that (112) is - the structure suggests (mistaken) belief, yet we already know the belief to be a fact. Conversely, in the CHC case, (119), involving reflection on a fact, is felicitous. (118) is pragmatically odd, however, as there is a clash between the factive presupposition to the effect that John is a penguin which arises from the structure, and our knowledge of the world in question which tells us that he is a man.

(116) John had been thinking [_{CP} Ø he was a penguin].

‘John had been labouring under the misapprehension that he was a penguin.’

- (117) # John had been thinking [_{CP} Ø he was a man].
 ‘John had been labouring under the misapprehension that he was a man.’
- (118) # John had been thinking [_{CP} how he was a penguin].
 ‘John had been reflecting on his status as a penguin.’
- (119) John had been thinking [_{CP} how he was a man]
 ‘John had been reflecting on his status as a man.’

Embedding the strings *John had been thinking he was a penguin* and *John had been thinking he was a man* as complementiser *how* clauses in a configuration parallel to that in (105), we get the pattern in (120) and (121). What we observe is the following. If the propositional content of the lowest CP is information we know to be false from our knowledge of the world in question, then the sentence as a whole is perfectly felicitous (cf. (120)). If, on the other hand, the propositional content of the lowest CP is information we know to be true, then the sentence as a whole is pragmatically odd (cf. (121)). That is to say, the only reading available for the lower clauses corresponds to that of the null complementiser clauses in (116) and (117), and not to the CHCs in (118) and (119). We can therefore conclude that the structure underlying the most deeply-embedded clause in (120) and (121) must also involve the null complementiser, rather than complementiser *how*. In other words, the structures for (120) and (121) are as in (122) and (123) respectively. By Occam’s Razor, we assume that cases such as (105) similarly involve the null complementiser, rather than long-distance extraction of complementiser *how*, and thus that (106) rather than (107) is the correct underlying structure. The evidence thus suggests that in contrast to familiar cases of *wh*-phrases, complementiser *how* cannot raise from the left periphery of a lower clause into the left periphery of the higher clause. This suggests that it is best analysed as a C head.

- (120) Sheila told me [_{CP} how John had been thinking [_{CP} ____ he was a penguin]].
- (121) # Sheila told me [_{CP} how John had been thinking [_{CP} ____ he was a man]].
- (122) Sheila told me [_{CP} how John had been thinking [_{CP} Ø he was a penguin]].
- (123) # Sheila told me [_{CP} how John had been thinking [_{CP} Ø he was a man]].

(B) No sluicing of the complement of CH

The second syntactic process known to target *wh*-phrases in spec-CP, and which, like long-distance extraction, fails to apply to complementiser *how*, is sluicing. Sluicing, first discussed by Ross (1969), is a specific form of ellipsis ‘in which the sentential portion of a

constituent question is elided, leaving only the *wh*-phrase' (Merchant (2004: 664)) (cf. (124)). More precisely, sluicing is the non(-overt) realisation of the IP complement to a *wh*-phrase in the specifier of CP (see Merchant (2001), (2004) for discussion). As was the case for the discussion of negative islands in section 4.5.1.2 above, I do not concern myself with a particular theoretical implementation of sluicing, but focus on the empirical facts.

- (124) A: Someone called. B: Really? **Who?** [Merchant (2004: 664), ex. (7b)]

Sluicing can apply in the embedded as well as the root domain, as we see from the examples in (125). From (125b) we see that sluicing of the complement of *how* in an embedded clause is in principle permitted. Complementisers, as C heads, do not permit sluicing (cf. (126)), unlike *wh*-phrases in specifier position.¹¹⁰ As we see from the examples in (127), it is impossible to sluice the complement of complementiser *how*.¹¹¹ In this regard, CH shows the same behaviour as the complementiser *that* in (126), rather than the interrogative *wh*-phrases in (125).

- (125) a. Jack bought something, but I don't know **what**.
[Merchant (2004: 664), ex. (7a)]

- b. Jack called, but I don't know {**when/how/why/where from**}.
[Merchant (2004: 664), ex. (7d)]

- (126) * Apparently Jack bought a new car, but I didn't know **that** [~~Jack bought a new car~~].

- (127) a. * As soon it was announced that London would host the Olympics, my sister rang to tell me **how** [~~London would host the Olympics~~].
b. * I know he's a very successful author, but there's really no need for him to keep repeating **how** [~~he's a very successful author~~].

Can we conclude from the fact that complementiser *how* does not permit sluicing of its IP complement that it is thus a C head like *that*, rather than a *wh*-phrase in specifier position like interrogative *wh*-expressions? Sluicing has in fact already been put to use as a diagnostic to determine whether a *wh*-expression has the status of a head or a phrase. Soare & Shlonsky (2011: 665) argue (contra Collins (1991)) that *how come* is a *wh*-phrase in spec-CP rather than a C head on precisely the grounds that it behaves like other *wh*-phrases in

¹¹⁰ The overt string in (18) is grammatical, but only if *that* is interpreted as a pronominal rather than a complementiser with an elided complement.

¹¹¹ To the extent that the strings in (127) are at all interpretable, this involves understanding *how* as a manner interrogative *wh*-expression, rather than as complementiser *how*.

permitting sluicing, including in embedded clauses (cf. (128)).¹¹² If the ability of a *wh*-expression to allow sluicing is taken as evidence that it is a phrase in spec-CP, then the inability of a *wh*-expression to allow sluicing seems to support an analysis of the *wh*-item as C head. In fact, this is precisely what Shlonsky & Soare (2011: 665) argue for *whether*, which contrasts with *how come* in not permitting sluicing (cf. (129)).

(128) They thought John left early, but they didn't tell me how come.

[Shlonsky & Soare (2011: 665), ex.

(41b)]

(129) * They thought John left early, but they didn't tell me whether.

[Shlonsky & Soare (2011: 665), ex.

(41c)]

There is a crucial difference with the case we are considering here, however. *How come* is an interrogative *wh*-expression, and we already know that the complements of *wh*-phrases can in principle be sluiced in interrogative contexts. Indeed, Merchant's (2001, 2004) formalism for sluicing is designed with only these cases in mind. Complementiser *how* clauses are not interrogative. Therefore before we can conclude that the impossibility of sluicing the complement of complementiser *how* is to be attributed to its status as *wh*-head rather than *wh*-phrase, we need to rule out the possibility that sluicing is a phenomenon restricted to interrogatives. Otherwise the inability to sluice from CH would reveal nothing more than the trivial fact that CHCs are not interrogative clauses.

Let us consider the case of embedded exclamatives. The *wh*-expressions which introduce exclamatives are analysed as *wh*-phrases (cf. Zanuttini & Portner (2003), for instance), just as the *wh*-expressions which introduce interrogatives are. If the IP complement to an (embedded) exclamative *wh*-phrase can be sluiced, this provides evidence that the phenomenon of sluicing is not restricted to interrogatives, and thus strengthens the case for attributing the ungrammaticality of sluicing with complementiser *how* to its status as *wh*-head rather than *wh*-phrase. As discussed in section 3.2.3.2 (H), in fact it appears that sluicing is possible in (embedded) exclamatives, although given the limited attention which has been paid to sluicing in exclamatives in comparison to in interrogatives, and the lack of consensus amongst those who have devoted attention to the topic, the empirical facts require corroboration on the basis of further investigation. I present again briefly the existing empirical observations.

¹¹² It is not uncontroversial to claim that *whether* is a C head, however. Kayne (1991: 665), analyses *whether* as a *wh*-phrase, citing Katz & Postal (1964: 96) and Larson (1985: 238) as other proponents of this view. Under such an analysis, it is not clear why sluicing of the complement of *whether* should be excluded.

In an observation he attributes to an unpublished manuscript by Chen (1997), Kim (2005: 181) claims that ‘while interrogatives support sluicing...exclamatives do not’. Yet with the exception of the example reproduced here in (131), the judgements he gives for the examples he produces indicate far from outright ungrammaticality, and in the case of (131), in fact rather suggests grammaticality for at least some speakers. Kim (2005) himself makes no comment on this discrepancy. Nor is information given on the source of the judgements, the apparent requirement for the matrix predicate to be in some way stressed or focussed, or how the multiple distinct grammaticality indicators assigned to a single examples are to be interpreted.¹¹³

(130) She longs for summer. [Kim (2005: 181-2), ex. (44a)]
 * It’s AMAZING [how ~~she longs for summer~~].

(131) Mary is really tall. [Kim (2005: 182), ex. (44b)]
 ✓/?? It’s AMAZING [how tall ~~Mary is~~].

(132) Mary has great courage. [Kim (2005: 182), ex. (44c)]
 ??/* It’s AMAZING what courage [~~Mary has~~].

(133) Mary is a trooper. [Kim (2005: 182), ex. (44d)]
 ??/* It’s AMAZING what a trooper [~~Mary is~~].

Some of the cases Kim (2005) presents thus seem rather to tie in with Ono’s (2006) claim that sluicing is grammatical in exclamatives. Note that the examples which Ono provides to support this claim, given here in (134) and (135), most resemble some of the less ungrammatical cases discussed by Kim (2005).

(134) John wrote an extremely long paper... [Ono (2006: 95), ex. (69)]
 ...and it’s unbelievable what a long paper [~~John wrote~~].

(135) John wrote an extremely long paper... [Ono (2006: 95), ex. (70)]
and it’s unbelievable how long (a paper) [~~John wrote~~].

¹¹³ An additional complication arises from the fact that *wh*-expression of the form *how* + adjective may occur in both (resolutive and true) interrogative (complement) clauses, and that a predicate such as *amazing* can embed both resolutes and exclamatives. Therefore we cannot exclude the possibility that the sluiced exclamative reading in (131) is deemed more grammatical under the influence of the grammatical sluiced interrogative reading.

It is clear that a thorough study of the empirical data concerning sluicing in (embedded) exclamatives is required before any firm conclusions can be drawn. Note, however, that even if embedded exclamatives do not (all) allow sluicing with the same ease that interrogatives do, the picture gained is not one of blanket ungrammaticality, as it is for sluicing in CHCs.¹¹⁴ This difference could plausibly be attributed to the head status of complementiser *how*, in contrast to the *wh*-phrase status of the *wh*-expressions found in exclamatives, especially given that independent support for this view was already provided from the inability of complementiser *how* to undergo long-distance extraction.¹¹⁵ Further research is then required to establish why sluicing frequently seems less felicitous in embedded exclamatives than in embedded interrogatives, if in both cases the *wh*-expressions are phrases in specifier position.

4.5.1.4 Conclusions

In the course of this section, I have offered evidence that, despite its *wh* form and distribution, ‘complementiser *how*’ nevertheless merits the term ‘complementiser’. Evidence was provided in support of the view that its position in the clausal left peripheral is the result of movement, neither from within the same clause nor from a lower clause. Whilst determining conclusively whether an element occupies spec-CP or C° is difficult, in the case of complementiser *how*, evidence was presented which is suggestive of the latter. Even as a C head, complementiser *how* retains its *wh*-status, as evidenced by the distribution of English CHCs, and thrown into even sharper contrast in comparison to Hungarian *hogy*-clauses. This suggests that reanalysis of *wh*-phrases to heads within the CP domain is not necessarily accompanied by loss of the *wh*-feature. Were this the case, the restriction of CHCs to contexts in which *wh*-clauses are permitted in present-day English would go unexplained. These observations combine to give the structure presented in (83). In section 6.3.3.1, whilst retaining the advantages of this analysis, I recast this simple CP structure for CHCs in cartographic terms.

¹¹⁴ It seems potentially significant that the only outright ungrammatical case of sluicing in an embedded exclamative which Kim (2005) gives involves the bare *wh*-expression *how*.

¹¹⁵ According to Ono & Fujii (2006: 163), who provide the example in (i), ‘*wh*-movement in exclamatives, like that in interrogatives, displays unbounded dependency’. That is to say exclamatives permit long-distance extraction.

(i) How brave everyone must think [~~how brave~~ you expect me to believe [he is ~~how brave~~]!
[Ono & Fujii (2006: 163), ex. (3)]

4.5.2 Additional syntactic properties of CHCs

In section 4.5.1, certain key syntactic properties of CHCs were discussed in order to motivate the structure in (83). Naturally, this is far from an exhaustive characterisation of the syntactic behaviour of this particular kind of FCC. In order firstly to give a more detailed and complete empirical description of CHCs, and secondly to motivate the view that on syntactic as well as interpretive grounds, CHCs qualify as a unique clause-type, in this section I catalogue certain additional syntactic properties which they display. This is conducted on the basis of the properties recorded in Table 7 of Chapter 3, allowing for a comparison of CHCs with the five more canonical kinds of FCC which were already discussed. The results of this comparison are summarised in section 4.5.3 below.

In this section, I begin by discussing the syntactic behaviour of CHCs in their own right. Unless otherwise stated, the observations and the data presented here for CHCs are novel, and have not previously been noted in the literature. Not all of the properties discussed in relation to the other FCCs are considered, as not all are applicable to CHCs: CHCs do not display SAI and have no non-finite equivalents. As they cannot be subject clauses, the question of whether they trigger number agreement with the verb does not come up. The issue of the range of *wh*-expressions involved does not arise, as CHCs by definition involve *how*. Nor does the question of the pied-piping of a preposition, given the conclusion that *how* is base-generated in the clausal left periphery. Similarly, discussion of multiple *wh* is not of relevance, given that *how* is a complementiser head rather than a *wh*-phrase. I pay particular attention to those which will inform the more detailed description of the clausal left periphery of CHCs, given in section 6.3.3.1.

4.5.2.1 CHCs are strong islands for extraction

Legate's (2010: 126) observation that CHCs are strong islands - that is to say that the extraction of both arguments and adjuncts is prohibited - was already noted in section 4.3 above. Starting from the base of the perfectly grammatical CHC example in (136), we see that the equivalent example involving the extraction of an arguments (137a), even when D-linked (137b), and of adjuncts (137c) is ungrammatical. Legate (2010: 126) contrasts the behaviour of CHCs in this regard with that of non-factive *that*-clauses, where the extraction of arguments (139a, b) and adjuncts (139c) from the complement clause does not result in a degradation of grammaticality in comparison to the basic case of a *that*-clause complement without extraction (138). She observes that strong island status is rather something which CHCs rather have in common with definite DPs. Whilst the empirical observation is accurate - the pattern presented for argument and adjunct extraction from a definite DP in (140) and (141) echoes that presented for CHCs in (136) and (137) - it was already demonstrated at length in section 4.3 that there are very convincing reasons not to

draw the conclusion that CHC themselves are DPs. What remains to be accounted for then is the fact that whilst certain *wh*-clause complements are strong islands (CHCs, exclamatives), other *wh*-clause complements which show a strong surface similarity to these clauses are weak islands (resolutives, true interrogatives), as are factive *that*-clauses.¹¹⁶ A promising line of investigation is noted in section 6.3.5.1.

(136) They told me [**how** she buys junk food every day].

[Legate (2010: 126), ex.

(13a)]

(137) a. * What did they tell you [**how** she buys ~~what~~ every day]?

[Legate (2010: 126), ex.

(13b)]

b. * Which food did they tell you [**how** she buys ~~which food~~ every day]?

c. * Why did they tell you [**how** she buys junk food ~~why~~]?

(138) They told me [**that** she buys junk food every day].

(139) a. What did they tell you [**that** she buys ~~what~~ every day]?

[Legate (2010: 126), ex.

(13c)]

b. Which food did they tell you [**that** she buys ~~which food~~ every day]?

c. Why did they tell you [**that** she buys junk food ~~why~~]?

(140) They told me [**the news** that she buys junk food every day].

(141) a. * What did they tell you [**the news** that she buys ~~what~~ every day]?

b. * Which food did they tell you [**the news** that she buys ~~which food~~ every day]?

c. * Why did they tell you [**the news** that she buys every day ~~why~~]?

4.5.2.2 CHCs don't permit embedded clause adjuncts preceding complementiser *how*

Recall from section 3.2.1.3 (C), where examples (142) and (31) were first presented (as (30) and (31) respectively), that McCloskey (2006) identifies a contrast between true interrogative complements, which allow certain adjuncts associated with the embedded clause to precede the *wh*-expression introducing the clause (cf. (142)), and resolute

¹¹⁶ The examples in (136)-(141) draw on Haegeman & Nye (2012). Those which are not drawn directly from Legate (2010: 126) are nevertheless modelled on her examples, with (140) and (141a) based particularly closely on her (14c) and (14d).

complements (31), which do not. In this regard, CHCs pattern like resolutive (and, in fact like FRs and all the FCC complements considered in Chapter 3 besides true interrogatives), as the examples in (144) illustrate.¹¹⁷ (144a) is modelled upon McCloskey's (2006: 98) example (58a), repeated here as (143a), with the content of the complement clause modified slightly to favour a CHC reading. The examples in (145) and (146) with the verbal predicates *tell* and *remember* show the same pattern: (145a) and (146a) show the ungrammaticality of such adjuncts preceding *how*, whilst (145b) and (146b) show that these adjuncts can in principle occur within CHCs, when in other positions.¹¹⁸ An explanation for the exclusion of such adjuncts from pre-complementiser position in CHCs is offered in section 6.3.3.

(143) a. * It was amazing [while they were out **who** had got in to their house].
[McCloskey (2006: 98) (58a)]
b. * The police established [while we were out **who** had broken into our
apartment]. [McCloskey (2006: 98)
(58b)]

(144) a. * It was amazing [while they were out **how** burglars had got into their house and stolen the TV].
b. * It was amazing [while they were out **how** no burglars had got into their house].

(145) a. * He told me [when he was young **how** they never went on holiday].
b. He told me [**how** they never went on holiday when he was young].

¹⁷ Note that there is no difficulty with adverbials occurring between the matrix predicate and CHC in the linear string, as the attested example in (i) illustrates. In order for the sentence to be grammatical however, the prepositional phrase *in 1991* must obligatorily be understood to modify the act of ‘describing’ of the matrix clause, rather than the ‘interviewing’ of the embedded clause.

(i) Seldon quotes Melanie Philips, then of the Guardian, describing in 1991 [how interviewing Blair was ‘like talking to a pleasant man with a pleasant family living in a pleasant north London house’].

From *The Observer*, 4.07.2004 p.1, col. 4.

¹¹⁸ The structures discussed above in footnote 88 where CHCs are used to ‘reactivate’ information from the common ground which the speaker wishes to elaborate on seem to show different behaviour in this regard, reinforcing the conclusion that a different analysis is required. In cases such as (i), the adjunct preceding complementiser *how* can be interpreted as modifying the content of the embedded clause.

(i) a. (Do you) remember [yesterday **how** he was acting quite strangely]?
b. You know [tonight **how** we were going to have chili]?

- (146) a. * She still remembered [yesterday **how** he was acting quite strangely].
 b. She still remembered [**how** yesterday he was acting quite strangely].

4.5.2.3 MCP (argument fronting)

As was discussed in section 3.2.2.2 (B), main clause phenomena (MCP), such as argument fronting and negative preposing, are not in fact strictly limited to main clauses, but are additionally able to occur in certain complement clauses, as was noted by Emonds (1970), and explored in depth by Hooper and Thompson (1973). Their distribution is nonetheless restricted - the only type of English finite complement clause which is generally considered to permit MCP are non-factive *that*-clauses. Given that CHCs were shown in section 4.4.1 to be factive clauses, it is not surprising that many native speakers deem CHCs involving fronting of the direct object to be highly degraded in comparison to the equivalent cases without argument fronting, if not altogether ungrammatical, as the contrast between the (b) and (a) examples in (147) and (148) illustrates.¹¹⁹

- (147) a. John told me [**how** he hadn't read this book until last weekend].
 b. ?* John told me [**how** this book, he hadn't read until last weekend].

- (148) a. It's funny [**how**we bumped into your brother again last week].
 b. ?* It's funny [**how** your brother we bumped into again last week].

As also noted in Chapter 3, however, it has been observed as far back as Hooper and Thompson (1973: 479) that some speakers do permit at least certain MCP in factive *that*-clauses). It is therefore perhaps also to be expected that MCP are not entirely excluded from CHCs, or at least not for all speakers. (149) and (150) are attested examples of CHCs which involve argument fronting.

¹¹⁹ Given that I belong to the more permissive group of speakers identified by Hooper & Thompson (1973), who allow (certain) MCP in (some) factive clauses, I tested these sentences with four other native speakers. In each case, three of the speakers considered the variants with argument fronting to be altogether ungrammatical, whilst the fourth speaker deemed these to be degraded but not ungrammatical. Crucially, all considered the variants with argument fronting to be degraded in comparison to those without. A complication arises however, in that sentences exactly equivalent to the (b) sentences above, but with the complement clauses introduced by *that* instead of *how* were deemed equally ungrammatical. Whilst the judgement of argument fronting in the *that*-clause complement to *funny* as being highly degraded or ungrammatical is in line with the claims in the literature, as this is a factive *that*-clause, it would be expected that argument fronting were permitted in the non-factive *that*-clause complement to *tell*. This only serves to reinforce my conclusion that the facts about speaker variation in MCP distribution are too poorly understood for conclusions to be drawn on the basis of this data.

(149) It makes me feel kinda guilty when I think [**how** what they earned in 40 years I could earn in a few months].¹²⁰

(150) Reading around in its strange and bold and marvelous pieces, pieces that seemingly sprout out of nowhere, that exhibit incredible variety, that often enough seem spoke by ancient voices up out of the boggy penetrable earth, I think [**how** what one cannot speak of, one calls genius], or quotes too lengthily.

Note however that the examples in (149) and (150) involve CHCs as complement to *think* - a predicate which does not readily accept CHCs or other *wh*-complements. (149) and (150) involve the same sense of *think* which can be glossed as ‘think about’ or ‘reflect on’ which was discussed in section 4.5.1.3 (A) above, rather than the more usual ‘hold the opinion’ interpretation found when it takes a (non-factive) *that*-clause complement. It may be that this influences the acceptability of argument fronting in the CHC complements. However, on the basis of the limited range of MCP and contexts under consideration here, no conclusions can be drawn. Pending a detailed investigation of which MCP are possible in CHCs, and in which contexts, I set these data aside and do not use them to inform my analysis. There is increasing awareness that MCP constitute a heterogeneous class of processes (see Aelbrecht, Haegeman & Nye (2012)), and that the extent of speaker variation regarding their distribution is under-explored, and this in turn will inform the study of MCP in CHCs.

4.5.2.4 NPI licensing

The inability of CHCs to license NPIs, as exemplified in (151), is already noted by Legate (2010: 127), and contrasted with the behaviour of the true interrogative complements illustrated in (152). With the exception of factive *that*-clauses under negative emotive factives however, true interrogative complements are the only kind of finite complement clause considered here which have this property, so the behaviour of CHCs is in no way exceptional - resolutive, exclamatives and other *that*-clause complements also fail to license NPIs.¹²¹

¹²⁰<http://www.thefreelibrary.com/Interview+Michael+Greco%3A+I%27m+guttled+at+being+axed+..+I%27ve+s uch+a+lot...-a082951821>. Last accessed 06.06.2013.

¹²¹ Legate (2010: 127) makes an additional observation concerning the licensing of NPIs in CHCs, this time drawn in contrast to *that*-clause complements. Using the examples reproduced here in (i) by way of illustration, Legate (2010: 127) notes that in addition to not licensing NPIs themselves, CHCs also do not permit NPIs to be licensed by a negative element outside the clause. In this regard they pattern alike with definite DPs (iia), but contrast with indefinite DPs (iib) and *that*-clauses (iic), where an NPI internal to the complement can be licensed by a negative element in the matrix clause. This can potentially be linked to their status as strong islands (section 4.5.2.1).

(i) a. * Nobody told me [**how** she believes anyone]. [Legate (2010: 127), ex (20c)]
 b. * Nobody told me [**how** any fairies exist]. [Legate (2010: 127), ex (20d)]

- (151) a. * They told me [**how** she believes anyone]. [Legate (2010: 127), ex (20a)]
 b. * She told me [**how** any animals exist here]. [Legate (2010: 127), ex (20b)]

- (152) a. I wonder [**how** she believes anyone]. [Legate (2010: 127), ex (19c)]
 b. I wonder [**how** any animals exist here]. [Legate (2010: 127), ex (19d)]

4.5.2.5 Clefting of the *wh*-expression

The *wh*-expression of a CHC, like that of an exclamatives (and potentially also that of a FR) cannot be clefted. The attested *how*-clause examples in (153), which are ambiguous between a CHC and an interrogative reading. The corresponding examples in (154) in which the *wh*-phrase has been clefted permits only the interrogative reading involving manner *how*.

- (153) a. Last Saturday, the Reporter told [**how** he had lost half of one of his molars while biting into a bread roll].¹²² (✓ CHC; ✓ interrogative)
 b. A great plantsman told me recently [**how** a trip to China on a scholarship had utterly changed his way of looking at gardens beyond a house].¹²³ (✓ CHC; ✓ interrogative)
- (154) a. Last Saturday, the Reporter told [**how** it was that he had lost half of one of his molars while biting into a bread roll]. (* CHC; ✓ interrogative)
 b. A great plantsman told me recently [**how** it was that a trip to China on a scholarship had utterly changed his way of looking at gardens beyond a house]. (* CHC; ✓ interrogative)

4.5.2.6 Pre-posed CHCs and CHCs as subject clauses

From constructed examples such as those given in (155) and (156), it appears that the occurrence of a CHC clause in pre-posed position is degraded, if not altogether ungrammatical. (155a) and (156a) are grammatical examples where a CHC reading for the *how*-clause complement is strongly favoured, if not forced. Yet when these sentences are manipulated so that the *how*-clause is pre-posed to a position preceding the embedding clause, the resulting strings in (155b) and (156b) are much less acceptable. For resolutives,

-
- (ii) a. * Nobody told me [**the story** about anyone]. [Legate (2010: 127), ex (18a)]
 b. Nobody told me [**a story** about anyone]. [Legate (2010: 127), ex (18b)]
 c. Nobody told me [**that** you believe anyone]. [Legate (2010: 127), ex (18c)]

¹²² From *The Guardian* (Money), 19.07.2008, p.2 col. 3.

¹²³ From *The Financial Times* (House and Home), 26.04.2008 p.3, col. 3.

exclamatives and factive *that*-clauses there is also similar uncertainty as to whether they may be pre-posed, and if so, the extent to which this is grammatical. Non-factive *that*-clauses and true interrogative complements in contrast do seem to be able to be fronted.

- (155) a. He told me a long time ago [**how** he had never been interested in travelling].
 b. ?* [**How** he had never been interested in travelling], he told me a long time ago.

- (156) a. I will always remember [**how** he was the first one to arrive].
 b. ?* [**How** he was the first one to arrive], I will always remember.

A similar pattern emerges concerning the possibility of a CHC clause to occur as subject (cf. (157), (158)). Even with adjectival predicates such as *interesting* and *strange*, where the CHC ‘complement’ is understood as the subject of the predicate, the examples with the *how*-clause in subject position (cf. 157b, 158b) are degraded if not altogether ungrammatical. This contrasts with the perfectly grammatical (attested) examples in where they CHCs are extraposed (cf. 157a, 158a). If clausal subjects do not occupy the canonical subject position, but rather the specifier of a Topic position, (Koster 1978, Alrenga 2005, Takahashi 2010), then a unified explanation can be given for the facts in (155)-(158).¹²⁴

- (157) a. It’s interesting [**how** all these bankers have been writing in detailing their experiences and woes after being laid off].¹²⁵
 b. ?? [**How** all these bankers have been writing in detailing their experiences and woes after being laid off] is interesting.¹²⁶

- (158) a. It’s strange [**how** good can come out of tragedy].
 b. ?? [**How** good can come out of tragedy] is strange.

4.5.3 CHCs in the typology of finite complement clauses of English

Section 4.5.1 drew on certain key syntactic properties of CHCs to motivate a particular proposal for their internal structure. In section 4.5.2, CHCs were assessed on the basis of additional properties which were drawn from the literature on FCCs and used to distinguish the five types of FCC discussed in Chapter 3. There are of course other aspects of their syntactic behaviour which could be considered, but the goal in this chapter was to show that CHCs can be identified as an additional type of FCC on those same grounds which have

¹²⁴ The behaviour of CHCs in this regard recalls that of the partially-integrated clauses discussed by Wurmbrand (2012). This parallel requires further investigation in future work.

¹²⁵ From *The Observer* 25.05.2008 p. 6 col. 1.

¹²⁶ From *The Observer* 16.03.2008 p. 9 col 5.

already been used in the literature to distinguish more familiar FCCs. The findings are summarised in Table 3, where CHCs are added to the results which were presented in Table 7 in section 3.4. What we see is that CHCs involve their own unique combination of syntactic properties. In combination with the fact that they are also interpretively distinct from all of the other clause-types under consideration, as established in section 4.4, there is as much motivation for considering CHCs as a distinct member of the inventory of FCCs as there is for those FCCs discussed in Chapter 3.

Note that there is no single syntactic property distinguishing CHCs from the other FCCs. As was already observed in the conclusion to Chapter 3 (section 3.4), what differentiates any one kind of FCC from all others is the unique combination of properties which it displays. This lends support to Warner's (1982: 178) view, expressed in the context of his discussion of CHCs and other FCCs in his corpus of Old English, that 'it may be that we have to do not with clause types that are always theoretically distinguishable but with clines between such clauses'. The idea of a 'cline' of clause-types seems to sit well with the empirical data - in many cases it appears to be a question of a greater or lesser degree of distinction between clause-types, rather than of discrete categories. We can nevertheless still distinguish clause-types, providing that we take a fine-grained enough view, even if this does raise questions - already addressed in section 2.5.4 - about the proliferation of clause-types and where to draw the line.

Table 3: Overview of the syntactic properties of English finite complement clauses, including CHCs

	true int.	res.	exclam.	FR	factive <i>that</i>- clause	non- factive <i>that</i>- clause	CHCs
SAI	%√	*	*	*	*	*	*
embedded clause adjunct preceding the complement	√	*	*	*	*	*	*
can be fronted	?√	?*	?*	√	?*	√	?*
NPIs licensed	√	*	*	*	* (√ under negative emotive factives)	√ by external negation	*

island for extraction	√ weak	√ weak	√ strong	√ strong	√ weak	*	√ strong
permit MCP (argument fronting)	*	*	*	*	% *	√	% *
can contain unstressed negation	√/*	√/*	*	√	√	√	√
allows elliptical reduction (sluicing)	√	√	√/*	*	n/a	n/a	*
wh-expression can be clefted	√	√	*	?*	n/a	n/a	*
has a non-finite equivalent	√	√	*	*	*	*	*
pied-piping of P with wh-expression	√	√	√	*	n/a	n/a	n/a
multiple wh	√	√	*	*	n/a	n/a	n/a
as subject triggers agreement with V	*	*	*	√	*	*	n/a
allows gapping	√	√	*	*	*	*	*
range of wh-expressions	<i>who; what, where; when; why, how; which N; how + adj./adv. v.</i>	<i>who; what, where; when; why, how; which N; how + adj./adv.</i>	<i>how; what a + sg. count N/ what + mass N/ plural count N; how (very) + adj./adv.</i>	<i>what; how; when; where; what few/ little; wh-ever</i>	n/a	n/a	<i>how</i>

Table 4: Number of properties held in common by English finite complement clauses, including CHCs

	true interrogative	resolutiv e	exclamativ e	FR	factive <i>that</i> - clause	non- factive <i>that</i> - clause	CH C
interrogative		11	5	4	4	4	3
resolutive	11		9	6	8	4	7
exclamative	5	9		9	9	5	9
FR	4	6	9		8	6	10
factive <i>that</i>-clause	4	8	9	8		11	11
non-factive <i>that</i>- clause	4	4	5	6	11		7
CHC	3	7	9	10	11	7	

Table 4 reproduces Table 8 from section 3.4, with the addition of CHCs, to show the number of syntactic properties which CHCs hold in common with the five other complement clause-types under consideration here, and with free relatives. This gives a rough indication of which FCCs CHCs show the greatest degree of similarity to in terms of their syntactic behaviour. As noted in the discussion of Table 8 in section 3.4, the figures here are merely indicative of a trend, and the common absence of a property from multiple clause-types may not necessarily have the same explanation in each case.

It transpires that of the properties considered for FCCs in this work, CHCs hold the most in common with factive *that*-clauses, narrowly followed by FRs and exclamatives. They also show a considerable number of common properties with both resolutive and non-factive *that*-clauses. Only true interrogatives seem to have little in common with CHCs. This seems a reasonable representation of the observations made in this chapter, where both the factivity of CHCs (section 4.4.1), and the status of complementiser *how* as a C head (section 4.5.1.3) were motivated. Thus it is not surprising if CHCs have most in common with factive *that*-clauses when it comes to internal syntax, despite their external syntactic similarities to *wh*-clauses. The distributional similarities which CHCs were shown to display to other *wh*-clauses will be discussed and made more precise in the following chapter, Chapter 5, with the ramifications for the selection of CHCs and other FCCs explored in Chapter 6.

4.6 Conclusions

On the basis of their unique combination of syntactic properties and unique interpretation - the properties which, in Chapter 2, were deemed necessary to identify an independent clause-type - there is as much justification for considering CHCs as an independent type of FCC as there is for the factive *that*-clauses, non-factive *that*-clauses, true interrogatives, resolutives and exclamatives discussed in Chapter 3. We thus conclude this chapter having expanded the inventory of English FCCs by the addition of CHCs, a clause-type which have largely been overlooked until now. The comparatively little attention which CHCs have received holds just as much for their distribution as for their syntactic and interpretive properties. Accounts of FCC distribution typically deal with the distribution of 'declaratives', 'interrogatives' and 'exclamatives'. The question arises as to how and if such accounts extend to the more nuanced typology of FCCs presented here. This is the issue to which I turn in the following chapter. There we see that the observations made on CHCs are interesting not only in their own right, as the documentation of the syntactic and interpretive behaviour of an understudied clause-type, but for what they contribute to our understanding of more general syntactic processes such as the selection of clausal complements.

Chapter 5 The distribution of finite clausal complements

5.1 Introduction and overview

At the end of Chapter 4 we arrived at a detailed typology of the finite clausal complements of English. This was drawn up on the basis of the internal syntactic properties and interpretation of both those FCCs which have typically been considered in the literature on complement clauses, and which were presented here in Chapter 3, and of the less widely-discussed complementiser *how*-clauses which were the focus of Chapter 4. It was shown that each of these six FCCs can be considered to constitute an independent clause-type, given the unique combination of syntactic and interpretive properties which each displays. The discussion focussed on these complement clauses themselves, abstracting away, to a large extent, from the embedding contexts in which they occur. Given the lack of any existing clear and detailed presentation of such a wide range of complement clauses, offering a comprehensive overview of the various FCCs of English was, to a certain extent, a goal in its own right. However, the issue of clause-type in the embedded domain is also of importance for its apparent interactions with a number of other syntactic processes, including - most crucially for my purposes here - the distribution of finite clauses as (object) complements to (verbal/adjectival) predicates.

A commonly-held position is that FCCs are selected by matrix predicates on the basis of their clause-type: (variations on) the standard view (see e.g. Grimshaw 1979) that *think* selects only for declarative complements (1) and *wonder* only for interrogatives (2), whilst

know selects for both declaratives and interrogatives, as well as exclamatives (3).^{1 2} Other predicates allow the same range of complements, as Table 1 shows. Accounts which espouse some variant of this position will be discussed in section 5.2, with a particular focus on the influential proposal made by Grimshaw (1979).

- (1) a. John thought [that Mary lived in Spain]. [declarative]
 b. * John thought [why Mary lived in Spain]. [*interrogative]
 c. * John thought [what a lot of time Mary had spent in Spain]. [*exclamative]
- (2) a. * John wondered [that Mary lived in Spain]. [*declarative]
 b. John wondered [why Mary lived in Spain]. [interrogative]
 c. * John wondered [what a lot of time Mary had spent in Spain]. [*exclamation]
- (3) a. John knew [that Mary lived in Spain]. [declarative]
 b. John knew [why Mary lived in Spain]. [interrogative]
 c. John knew [what a lot of time Mary had spent in Spain]. [exclamative]

Table 1 - Summary of the traditional view of FCC distribution

		declarative	interrogative	exclamative
(1)	<i>think (believe, claim)</i>	√	*	*
(2)	<i>wonder (ask, inquire)</i>	*	√	*
(3)	<i>know (forget, see)</i>	√	√	√

¹ The claim that *think* permits only declarative complements holds only when *think* has the meaning ‘be of/hold the opinion’, as it does in (1) above. When it rather has an interpretation closer to ‘think about’ or ‘reflect on’, then other kinds of complements are possible, such as the exclamative in (i) below, and the CHCs discussed in section 4.5.1.3 (A). It seems that it is the particular tense and aspect of the matrix clause in (i) which permit this interpretation of the predicate. The same interpretation also appears to be forced in imperative contexts such as (iia) and (iib) below, with the consequence that exclamatives and CHCs are possible in this context too. Interestingly, *that*-clause complements are impossible (iic) under imperative *think*. That it is not the matrix predicate alone which determines the range of FCCs possible, but other properties of the matrix clause too, was already noted in section 4.4.1.3. Pending a thorough investigation of the issue - which although noted since at least Grimshaw (1979), has received little attention, with the exception of McCloskey (2006) and the unpublished work of Turnbull-Sailor (2007) - I follow the vast majority of authors on the topic in making the simplifying assumption that it is the matrix predicate alone which is the selector.

- (i) I was just thinking [what a lovely time we had yesterday].
 From http://www.ldoceonline.com/dictionary/think_1. Last accessed 26.06.2013.
- (ii) a. Just think [what a close call that was].
 b. Just think [how he never once visited].
 c. * Just think [that he never once visited].

² Note that declarative complements to idiomatic *it's a wonder* are possible (cf. i) however. FCC complements to nominals fall beyond the scope of this work.

- (i) It's a wonder that he gets any work done with that racket in the background.

As is already clear from this introductory overview, such approaches invariably involve the conflation of what in this work are argued to be distinct clause-types: factive and non-factive *that*-clauses as ‘declarative’, true interrogatives and resolutive as ‘interrogative’ in the basic system sketched above. None of the accounts take into consideration as broad a range of clause-types as the six FCCs discussed in this work. For this reason, in section 5.3 I turn to the distributional predictions made for the expanded inventory of FCCs by certain of the most influential existing accounts positing selection of clausal complements on the basis of clause-type. I highlight certain key contexts where the distribution of FCCs departs from what is expected if matrix predicates select FCCs on the basis of the clause-type of these complements. This involves both contexts where clauses which, on the basis of syntactic and/or semantic properties which they hold in common, might be considered to be members of a single clause-type, in fact diverge in distribution (factive *that*-clauses versus resolutive, exclamatives and CHCs), and contexts where clauses which have been shown, on the basis of the distinctive range of syntactic and interpretive properties which they display, to merit the status of an independent clause-type nevertheless pattern alike (resolutive, exclamatives and complementiser-*how* clauses). In section 5.3 I situate these results in the context of a much broader overview of the distribution of the six kinds of FCC under consideration, taking into account their occurrence under a wide range of CP-selecting predicates. Several striking patterns emerge. The first is that when CP-selecting verbal/adjectival predicates are classified on the basis of the range of FCC complements they permit, just six classes emerge, out of the 63 combinations which are mathematically possible were predicates to permit any combination of the six FCC established. Furthermore, the common distribution of resolutive, exclamatives and CHCs turns out to hold across all embedding contexts. Note that it is only with the fine-grained approach to clause-type taken here that such patterns emerge - they are disguised in a system of clause-type which distinguishes only declaratives, interrogatives and exclamatives.

In combination, the findings of the current study point strongly to the conclusion that the distribution of FCCs is not determined on the basis of the clause-types identified and discussed in the previous two chapters. The question naturally then arises as to what factors, if not clause-type, do influence the distribution of FCCs. I dedicate the remainder of this chapter, section 5.4, to this question. I show that the most parsimonious account is one that looks inside FCCs for properties which they hold in common. Specifically, I propose that those FCCs which consistently show a common distribution - resolutive, exclamatives and CHCs - can be characterised, to the exclusion of all other FCCs, as factive *wh*-clauses. Furthermore, I show that each other kind of FCC with its own distinct distribution can be uniquely characterised for the purposes of accounting for their distribution in terms of the same properties of being (or not being) *wh* and factive: true interrogatives are *wh* but not factive, factive *that*-clauses are not *wh* but factive, and non-factive *that*-clauses are neither *wh* nor factive. Thus the distribution of English FCCs will be shown to be determined by these two features.

The goal of this chapter is precisely this: to argue for a new characterisation of what it is that those FCCs which distribute alike hold in common, and what it is that differentiates FCCs with a distinct distribution, if not clause-type. In this chapter, I do not take a stance on the specific encoding of the properties which I propose. The much-debated issues of whether the source of factivity is the matrix predicate, or the complement clause, or whether it rather arises from the interplay of the two, and of whether factivity is a semantic property with a syntactic encoding, or rather a pragmatic effect are matters which I explore in the following chapter, chapter 6. The focus of this chapter is purely on providing the most accurate characterisation of the empirical data.

5.2 Clause-type as determining factor in the distribution of FCCs

As noted in the introduction, the idea that clause-type is relevant for the distribution of FCCs has been widespread since at least Grimshaw (1979), to the point that numerous accounts take for granted that complement clauses are selected by matrix predicates on the basis of their clause-type (see e.g. Rizzi 1997). There is considerable debate as to whether (and if so, how) - clause-type is syntactically encoded (see discussion in section 2.5), and thus as to whether the selection of complement clauses on the basis of clause-type is itself a syntactic - or rather a semantic - process. Over the three decades which have elapsed since the publication of Grimshaw (1979), there have been few serious challenges to the core idea that FCC are selected on the basis of their clause-type, however. This is not to say that no alternatives have been proposed. In relation to my own proposal for a new characterisation of the properties relevant to the distribution of FCCs, in section 5.4.2 I reference those accounts which posit the selection of complement clause on the basis of properties other than clause-type: Emonds' (1992) critique of Grimshaw (1979), for instance, as well as the work of Munsat (1986) and Watanabe (1993). These are discussed at greater length in section 6.3.6, as support for the proposal I offer for the implementation of these properties. Until now they have remained minority voices, however.

I begin by presenting the orthodox view, which is widely adopted. In this section I give an overview of certain key, influential accounts which propose that FCCs are selected on the basis of clause-type: Grimshaw (1979) and Rizzi (1997) in section 5.2.1, and Ginzburg & Sag (2000) in section 5.2.2. These accounts were already introduced in section 2.5 in relation to the debate as to the relation between syntactic and semantic 'types' of clauses. Here the focus is rather on the specific claims they make for the distribution of FCCs and

later, in section 5.3.2, on evaluating such approaches with regard to their ability to account for the broader range of empirical data presented here.

5.2.1 Selection for clause-type: the canonical view

One of the most influential accounts of the distribution of finite clausal complements in English is that of Grimshaw (1979). Many subsequent accounts, whilst differing in the details of the analysis, have followed hers in spirit, as is the case for Rizzi (1997). Grimshaw (1979) and Rizzi's (1997) accounts are both discussed in this section, for although they differ with regard to whether 'clause type' is deemed to be a purely semantic concept (Grimshaw 1979) or syntactically encoded (Rizzi 1997), they both encapsulate the same basic view that selection for finite clausal complements is on the basis of the clause-type of these complements - a view which in section 5.3 below I will show to be inadequate when it comes to capturing the broader range of empirical data presented here.

5.2.1.1 Semantic selection for clause-type: Grimshaw (1979)

The core idea of Grimshaw's account is that complement clauses are selected on the basis of their clause-type (which for Grimshaw is their 'interpretive type' - see section 2.5.2, and the discussion later in this current sub-section).³ Finite complement clauses belong to one of three types - proposition (P), question (Q) or exclamation (E). Matrix predicates have a semantic frame specifying the types of complements with which they are compatible. In order for the complex sentence to be well-formed, the finite complement must be of the type (or one of the types) specified by the matrix predicate (Grimshaw 1979: 286). For instance, *think* and *believe* select for complements of type P (4), *wonder* and *ask* select for complements of type Q (5), *amazing* and *surprised* select for complements of type E (6), as well as P, but not Q, and *find out* and *know* (7) select for complements of type P, Q, or E (Grimshaw (1979: 286)). Combining a complement of type P or E with a Q-requiring predicate such as *wonder* (5a, 5c), for instance, thus results in ungrammaticality, because the requirements placed on the complement by the semantic frame of the matrix predicate are violated. These patterns are summarised in Table 2, which largely replicates Table 1, albeit cast in terms of Grimshaw's interpretive types, and with the addition of the class of predicates represented by *amazing*.

³ Interpretive type is not only deemed of relevance for clausal complements, but also for nominal complements in Grimshaw's (1979) account. Predicates independently categorically select (c-select) for CP or DP complements, and semantically select (s-select) for propositions, questions and/or exclamations. My focus here is not on the issue of why only certain predicates permit CP complements, but rather on the possible realisations of CP complements for those predicates which do permit them, hence only on Grimshaw's 's-selection'.

- (4) a. John thought [that Mary lived in Spain]. [proposition]
 b. * John thought [why Mary lived]. [*question]
 c. * John thought [what a lot of time Mary had spent in Spain]. [*exclamation]
- (5) a. * John wondered [that Mary lived in Spain]. [*proposition]
 b. John wondered [why Mary lived in Spain]. [question]
 c. * John wondered [what a lot of time Mary had spent in Spain]. [*exclamation]
- (6) a. It's amazing [that Mary lived in Spain]. [proposition]
 b. * It's amazing [why Mary lived in Spain]. [*question]
 c. It's amazing [what a lot of time Mary had spent in Spain]. [exclamation]
- (7) a. John knew [that Mary lived in Spain]. [proposition]
 b. John knew [why Mary lived in Spain]. [question]
 c. John knew [what a lot of time Mary had spent in Spain]. [exclamation]

Table 2 - Summary of Grimshaw's (1979) view of FCC distribution

		proposition	question	exclamation
(4)	<i>think (believe, claim)</i>	√	*	*
(5)	<i>wonder (ask, inquire)</i>	*	√	*
(6)	<i>amazing (surprised)</i>	√	*	√
(7)	<i>know (learn, see)</i>	√	√	√

Recall from the discussion in section 2.5.2 that, for Grimshaw, the clauses which realise the interpretive types 'proposition', 'question', and 'exclamation' are not always syntactically distinct. The mapping between 'syntactic type' and 'interpretive type' is thus not one-to-one. A *wh*-clause, for instance, can map to a 'question' or equally to an 'exclamation', dependent upon the interpretive rule which acts upon the syntactic input. In other words, interrogative and exclamative complement clauses have a common syntax, and yet differ in interpretation. For this reason, they are a crucial test case for Grimshaw in determining whether FCC selection is syntactic or semantic. Grimshaw (1979: 279-280) sets out clearly the general predictions made for the distribution of FCCs by a syntactic theory of selection - that is to say, one in which 'the selection relationships between predicates and complements are stated over syntactic structure' (Grimshaw (1979: 279)) - which I reproduce in ((8) and (9)) below. She contrasts these with the predications of a semantic theory of selection - one where 'Predicates do not select for complements of a particular syntactic form, but rather for complements of a particular semantic type' (Grimshaw (1979: 280)) - which I present in (10) and (11).

It now becomes clear why interrogatives and exclamatives are of such importance - they are claimed to be syntactically identical yet semantically distinct, so the two types of approach make different predictions. If matrix predicates select for FCCs on the basis of their syntax, interrogatives and exclamatives are predicted to have a common distribution,

assuming they have the same *wh*-syntax. If matrix predicates rather select for FCCs on the basis of their semantics, interrogatives and exclamatives are expected to differ in distribution, as they correspond to two different interpretive types, ‘questions’ and ‘exclamations’. According to Grimshaw, the empirical facts support the latter conclusion. Examples such as (5) and (6) above illustrate contexts where the distribution of interrogatives and exclamatives diverges: under predicates such as *wonder* in (5), the former are permitted but not the latter, whilst the converse holds under *amazing* in (6). On the assumption that interrogatives and exclamatives are of a common syntactic type, this is altogether unexpected and cannot be accounted for, given (8). If selection is rather conducted on the basis of interpretive type, then the distribution of question and exclamation complements is perfectly in line with (11): the set of predicates under which they can occur indeed differs, yet, given (7), is not disjoint. ‘[T]he existence of *wonder*, *ask*, *amazing*, and *be surprised at* (and many other predicates too, of course) which select one kind of complement but not the other’ (Grimshaw 1979: 285) is taken by Grimshaw to be crucial evidence that the relevant ‘type’ when it comes to explaining the distribution of FCCs is interpretive type, which distinguishes them, not syntactic type, which they are claimed to hold in common.

Predictions from a syntactic theory of selection for selection on the basis of clause-type (Grimshaw 1979: 279-280):

- (8) Complements of the same syntactic form will be selected by the same predicates.
- (9) Complements of distinct syntactic form may be selected by distinct (though not necessarily disjoint) sets of predicates.

Predictions from a semantic theory of selection for selection on the basis of clause-type (Grimshaw 1979: 280):

- (10) Complements of the same semantic type will be selected by the same predicates.
- (11) Complements of different semantic types may be selected by different (though not necessarily disjoint) sets of predicates.

5.2.1.2 Syntactic selection for clause-type: Rizzi (1997)

Despite making the case for matrix predicates selecting FCC on the basis of their semantic types, Grimshaw (1979) recognises that there is nevertheless still theoretical scope for considering FCC selection rather to be a syntactic process. She states that ‘treating complement selection syntactically is possible...if the relevant aspects of semantic interpretation are built into syntactic structure’ (Grimshaw 1979: 317). Grimshaw (1979: 314) rejects such an approach, however, arguing that ‘this turns out to require theoretically undesirable and otherwise unnecessary complications in the grammar, in the form of abstract markers and complex transformational rules’. Under modern assumptions however, it is usual to assume both that interrogatives and exclamatives are syntactically distinct (see Chapter 3). The idea that FCC selection may be syntactic thus gains plausibility.

The construal of FCC-selection as a syntactic process is precisely what we see in Rizzi's (1997: 362) account, where '[c]omplementizers express the fact that a sentence is a question, a declarative, an exclamative...and can be selected as such by a higher selector'. Although Rizzi (1997) does not make specific reference to Grimshaw (1979), his work still adheres to the same basic idea that FCCs are selected by matrix predicates on the basis of their interpretive type, and that the empirical patterns to be accounted for are as presented in Table 2. The only difference is that interpretive type has a direct syntactic correlate. Although Rizzi does not explicitly argue for the syntactic nature of FCC-selection, this falls out of the broader theoretical perspective that he takes to clausal syntax.⁴

In Rizzi's account, the highest projection within the clause is posited to be ForceP, encoding clausal force. The specific interpretive type which a clause receives depends on the nature of the syntactic constituent which occupies the specifier or head position of ForceP - an interrogative *wh*-phrase in spec-ForceP will type the clause as a question, for instance, whilst complementiser *that* as the Force head will type the clause as declarative. The 'type' of a clause thus has a syntactic encoding via 'flavours' of ForceP, which map in turn to distinct semantic interpretations.⁵ Given that interpretively distinct clauses are then also necessarily distinguished at the syntactic level, this opens up the possibility that this is the level at which selection of FCCs takes place, just as Rizzi (1997) proposes.

What is of importance for the discussion here is that whilst Rizzi's (1997) account may differ substantially in implementation to that of Grimshaw (1979), nevertheless, it still adheres to the same basic view that FCCs are selected by matrix predicates on the basis of their interpretive type, and that the empirical patterns to be accounted for are those presented in (4)-(7) above. I challenge both of these ideas in the course of this chapter.

5.2.1.3 Selecting for clause-type: empirical issues

In section 5.2.1.2, we saw that it is theoretically plausible that the selection of FCCs is syntactically determined. In the light of the discussion in Chapter 3, there is also empirical support for this position. There it was illustrated that interrogatives and exclamatives do in fact show discernible differences in syntactic behaviour, which adds plausibility to the idea that they differ in 'type' at the syntactic as well as the semantic level. Recall that Grimshaw (1979: 286 f.n.6) herself notes, although cannot explain, the fact that interrogatives and exclamatives are characterised by the occurrence of different *wh*-expressions: *whether* is

⁴ In contrast, Emonds (1992) expressly critiques the view that finite clausal complementation is a purely semantic process, with specific reference to Grimshaw (1979), and proposes a syntactic reimagining of FCC-selection. His account is briefly mentioned in section 5.5.2 below, and discussed further in Chapter 6, section 6.3.2.

⁵ As discussed in section 2.5.3.3, other cartographic accounts propose alternative analyses, but without departing from the basic idea that each clause has a syntactically encoded clause-type, corresponding directly to a distinct semantic interpretation.

available in the former but not the latter, *what a* in the latter but not the former. If interrogatives and exclamatives are distinguished both syntactically and interpretively, then their distribution as presented in (4)-(7) and summarised in Table 2 is compatible with both prediction (9) and prediction (11), and we do not have grounds upon which to choose between FCC selection as a syntactic process or as a semantic process.

At this stage I do not pursue the issue of whether FCC selection is a syntactic or a semantic process further. This is firstly because whether the process is seen as syntactic or semantic reflects to a not inconsiderable extent a matter of theoretical taste in the relation once assumes to hold between the syntactic types and the interpretive types of complement clauses, and indeed between syntax and semantics more generally, as the discussion in section 2.5 of Chapter 2 made clear. Secondly as the discussion in the following sub-sections will make clear, there are empirical problems which cast doubt on the idea that selection is for clause-type, regardless of whether this is construed as a syntactic or a semantic process. In section 6.2.3, I motivate my decision to treat FCC-selection as a syntactic process.

There are in fact reasons to doubt that the distribution of interrogatives and exclamatives as presented in (4)-(7) is wholly accurate. My decision to use *why*-clauses to exemplify question-complements in the discussion of these distributional patterns is deliberate. If, for instance, a *where*-clause is used instead, then we already encounter empirical facts which depart from the patterns predicted by Grimshaw (1979). Whilst still excluded under *think* (although see footnote 1) (cf. 12a), interrogative complements turn out to be possible not only under *wonder* (12b) and *know* (cf. 12d), where *why*-clauses were permitted, but also under *amazing* (cf. 12c), where *why*-clauses were shown to be ungrammatical (compare (12c) with (6b) above). Although Grimshaw (1979: 282, f.n.3) notes the existence of patterns such as (12c) (albeit with *who* and *what* rather than with *where*), she considers these *wh*-complements to be exclamatives rather than interrogatives.⁶ In section 3.2.3.4, detailed argumentation was provided to show that such complements are in fact interrogatives. The implications of both the fact that interrogative *why*-clause complements distribute differently to the majority of other interrogative *wh*-clause complements (introduced by *wh*-expressions such as *who*, *what*, *where*), and of the fact that once this is taken into consideration, *amazing* seems to behave much like *know* in the range of FCCs that it permits, will be discussed in the course of this chapter, in section 5.3.2.4.4a.

- (12) a. * John thought [where Mary lived].
 b. John wondered [where Mary lived].

⁶ Interrogative *how*-clauses pattern like *why*-clauses in being unable to occur as the complement to *amazing*. *Whether*-clauses are also excluded from this context, although overall their distribution differs more substantially from that of *wh*-interrogative complements. See discussion in section 5.3.2.4.4a below.

- c. It's amazing [where Mary lived].
- d. John knew [where Mary lived].

Note that once it is recognised that predicates such as *amazing* permit interrogative as well as exclamative *wh*-complements - albeit a more limited range of interrogative complements than *know*, for instance - there are no longer any predicates in our system which permit exclamative but not interrogative complements, as the overview of the revised distributional patterns, presented in Table 3, shows. The existence of predicates such as *wonder* and *ask*, which permit interrogative but not exclamative complements, means that the two types of FCC do still differ in their distribution, however. There is another refinement to be made to the empirical patterns as presented to date. It is clear that the inventory of FCC 'types' which Grimshaw identifies (and which Rizzi also uses) is impoverished in comparison to that established here. The factive and non-factive *that*-clauses which I distinguish are conflated into a single type 'proposition' (or 'declarative' for Rizzi), as are 'resolutives' and 'true interrogatives', which are both taken to be of the type 'question' ('interrogatives' for Rizzi), and no mention at all is made of CHCs by either author. When approaches which posit selection on the basis of clause-type are applied to this broader range of FCCs, their weakness in accounting for the empirical patterns which emerge becomes clear.

Table 3 - Traditional view of FCC distribution (revised)

	proposition	question	exclamation
<i>think (believe, claim)</i>	√	*	*
<i>wonder (ask, inquire)</i>	*	√	*
<i>amazing (surprised)</i>	√	√ (where, what, who) * (why, how)	√
<i>know (learn, see)</i>	√	√	√

5.2.1.4 Selecting for clause-type: predictions from the canonical view

In Chapters 3 and 4, the motivation for considering the six FCCs under consideration in the current work to be distinct clause-types was made clear. Each was shown to display its own unique pattern of syntactic behaviour and its own interpretive effect. This is in line with the theoretical assumptions of this work, made clear in Chapter 2, whereby clause-types are taken to be distinguished from each other in terms of both syntax and semantics. Given this, the two sets of predictions which Grimshaw (1979) presents, the one for a syntactic theory of selection (cf. (8)-(9) above), the other for a semantic theory of selection (cf. (9)-(11)) are not in fact distinct. Under the assumptions which I make about the syntax-semantics mapping, a single set of predictions for the distribution of finite clausal complements which

arises from this revised view can be given (cf. (13) and (14)). Whether one defines clause-types syntactically (Rizzi 1997) or semantically (Grimshaw 1979), the same six types of FCC are distinguished, and thus the same predictions are made for their distribution. The six FCCs constitute distinct clause-types, and so are expected to show distinct distributional patterns.

Predictions from the approach taken to the syntax-semantics mapping in the current work for selection on the basis of clause-type:

- (13) Complements of the same (syntactically and semantically defined) clause-type will be selected by the same predicates.
- (14) Complements of different (syntactically and semantically defined) clause-types may be selected by different (though not necessarily disjoint) sets of predicates.

Whilst the patterns presented in Table 3 are in line with these predictions, when we take a more nuanced look at the data which emerges from the more detailed inventory of FCCs under consideration here, patterns arise which run counter to what is expected if FCC distribution is determined by the clause-type of the complement clause. Three of the FCCs under consideration – factive *that*-clauses, non-factive *that*-clauses and true interrogatives can easily be shown to have the distinct distributional pattern predicted of clauses belonging to distinct clause-types, as for each of these FCCs there is a class of predicates which accepts only that one kind of FCC as its complement. *Be glad, be sorry* only allow factive *that*-clauses, *claim, think* allow only non-factive *that*-clauses and *ask, wonder* allow only true interrogative complements.⁷ These predicate classes will be discussed in depth in section 5.3 below, where I give a comprehensive overview of the distribution of the six FCCs considered in this work under a range of matrix predicates. What is crucial for the current discussion however is that there are no equivalent classes of predicates selecting only resolutive, or only exclamatives or only CHCs. Not only this, but, strikingly, across all the CP-complement-selecting predicates tested, resolutive (a), exclamatives (b) and complementiser *how*-clauses (c) are shown to have exactly the same distribution, despite constituting distinct clause-types. The results are discussed in full in section 5.3 below, but the data in (15)-(18) already gives an indication of the trends. Predicates consistently either accept (cf. (15), (16)) or reject (cf. (17), (18)) all three of these types of FCC.

- (15) a. We found out/saw/forgot [where they had fled from].

⁷ A reviewer of a previous presentation of this data cites (i) and (ii) as evidence that *glad* does in fact permit *wh*-clause complements, citing these as attested hits in a Google book search, without giving more specific references. (i) is not grammatical in my variety of English, which I document here (see Methodology section 5.3.2.1). (ii) I do deem grammatical, but the *when*-clause is a temporal adjunct, much like the *after*-clause in (iii).

- (i) I'm glad what I done.
- (ii) I was glad when everyone left.
- (iii) I was glad after everyone had left.

- b. We found out/saw/forgot [what a dreadful experience it was].
 - c. We found out/saw/forgot [how they couldn't return home].
- (16) a. We described/detailed/discussed [where they had fled from].
- b. We described/detailed/discussed [what a dreadful experience it was].
 - c. We described/detailed/discussed [how they couldn't return home].
- (17) a. * We believed/thought/claimed [where they had fled from].
- b. * We believed/thought/claimed [what a dreadful experience it was].
 - c. * We believed/thought/claimed [how they couldn't return home].
- (18) a. * We are sorry/happy/glad [where they had fled from].
- b. * We are sorry/happy/glad [what a dreadful experience it was].
 - c. * We are sorry/happy/glad [how they couldn't return home].

Such facts are hard to reconcile with the idea that FCCs are selected on the basis of clause-type. The prediction made on the basis of (13) and (14) is that clauses of the same 'type' will occur under the same range of predicates. It is unexpected then that three types of FCCs, for which it has been shown that there is good motivation for considering them to belong to different clause-types, should systematically be selected by the same range of predicates. The distributional facts for resolutes, exclamatives and CHCs seem to be at odds with the detailed syntactic and semantic evidence presented in Chapters 2 and 3 to illustrate that they qualify as distinct clause-types. If we assume in line with Grimshaw (1979) and Rizzi (1997) that complement selection is conducted on the basis of clause-type, then either resolutes, exclamatives and CHCs constitute a single clause-type, which runs counter to the conclusion reached already in this work, or each predicate which allows resolutes, exclamatives and CHCs must stipulate individually that it permits resolutes, and that it permits exclamatives, and that it permits CHCs. Such a system could be implemented, but it involves a great deal of redundancy, and gives no insight into why it is these three CHCs in particular which distribute alike. The conclusion which I rather draw is that 'distributional types', of which resolutes, exclamatives and CHCs form a common case, must be distinct from clause-types, defined on the basis of internal syntactic and semantic properties. In section 5.4 I offer an alternative conception of the properties relevant for determining the distribution of FCC, which allows the common distribution of resolutes, exclamatives and CHCs to be captured, without losing sight of the distinctions which motivated the decision to consider them to be independent clause-types.

5.2.2 Selection for clause-type: an alternative view

Before dismissing the idea of FCC-selection on the basis of clause-type altogether, in this section I discuss an alternative account which embraces this same approach: Ginzburg & Sag (2000). Like Grimshaw (1979), Ginzburg & Sag (2000) posit FCC-selection on the

basis of the interpretive types of FCCs, but the inventory of types which they posit, and thus the predictions made for the distribution of FCCs, differs. I take the failure of Ginzburg & Sag's (2000) account to parsimoniously account for the greater and more nuanced range of data presented in this current work as further support for the view that the problem lies with the fundamental idea that FCCs are selected by matrix predicates on the basis of clause-type, rather than with any particular implementation of this idea.

5.2.2.1 Semantic selection for interpretive type: Ginzburg & Sag (2000)

Abstracting away from the precise details of the theoretical implementation (see section 2.5.2) Ginzburg & Sag's (2000) proposal also involves matrix predicates selecting complement clauses on the basis of the interpretive type of the latter. Like Grimshaw, Ginzburg & Sag posit that finite complement clauses belong to one of three types which are available for selection by matrix predicates. Two of these - 'proposition' and 'question' are as proposed by Grimshaw, but instead of 'exclamation', the third type which they posit is 'fact'. As these types are defined semantically, there may be variation in the syntactic form of the clauses realising these - both exclamatives and factive *that*-clauses qualify as 'facts' (non-factive *that*-clauses remain 'propositions', as in Grimshaw's account). In addition, 'a factive predicate can coerce clauses so that their denotation becomes fact-denoting' (Ginzburg & Sag 2000: 74): this is taken to apply to interrogatives. The correspondence between the types proposed by Grimshaw (1979) and those which Ginzburg & Sag make use of are summarised in Table 4. Given the clear syntactic differences between factive *that*-clauses and exclamatives for instance, it is clear that the interpretive types which Ginzburg & Sag postulate cannot correspond to clause-type as I define it here.

Table 4 - Comparison of the interpretive types proposed by Grimshaw (1979) and Ginzburg & Sag (2000)

	Grimshaw (1979)			Ginzburg & Sag (2000)		
	proposition	question	exclamation	proposition	fact	question
<i>forget</i> (<i>know, remember</i>)	√	√	√	*	√	coerced to 'fact'
<i>think</i> (<i>believe, claim</i>)	√	*	*	√	*	*
<i>ask</i> (<i>wonder</i>)	*	√	*	*	*	√

Given the difficulties discussed in 5.2.1.4, it might seem that their alternative approach to interpretive types is advantageous. However, whilst Ginzburg & Sag's account might seem

to offer a more nuanced approach to the data than that of Grimshaw, there are difficulties in accounting for the range of data that they profess to be able to explain, even before we turn to the greater range of FCCs under consideration here. As factive *that*-clauses and exclamatives are of the same type ‘fact’, they are predicted to have the same distribution. For many predicates, this is the correct prediction. Neither factive *that*-clauses nor exclamatives can occur under predicates such as *believe*, *think* and *claim* (cf. 19), and both can occur under predicates such as *find out*, *see* and *forget* (cf. 20).⁸ Yet Grimshaw (1979: 323) already observed that exclamatives cannot occur as the complement to all predicates which select factive *that*-clauses. Predicates such as *be glad* and *be sorry* accept factive *that*-clause complements but not exclamatives (cf. 21). What to my knowledge has not previously been noted is that there are additionally predicates which, conversely, permit exclamatives but not factive *that*-clauses, such as *detail* and *discuss* (cf. 22), providing an additional context in which the distribution of factive *that*-clauses and exclamatives diverges. These facts go unexplained on Ginzburg and Sag’s approach. Factive *that*-clauses and exclamatives are taken to be of the same interpretive type, ‘fact’. Matrix predicates are claimed to select FCCs on the basis of interpretive type. Thus there is no way to explain the divergence in distribution between factive *that*-clauses and exclamatives which is illustrated in (19)–(22) above.

- (19) a. # We believed/thought/claimed [that it was a dreadful experience].
 b. * We believed/thought/claimed [what a dreadful experience it was].
- (20) a. We found out/saw/forgot [that it was a dreadful experience].
 b. We found out/saw/forgot [what a dreadful experience it was].
- (21) a. I’m sorry [that it was a dreadful experience].
 b. * I’m sorry [what a dreadful experience it was].
- (22) a. * I detailed [that it was a dreadful experience].
 b. I detailed [what a dreadful experience it was].

5.2.2.2 Selecting for clause-type: predictions from the alternative view

The fundamental difficulty with Ginzburg & Sag’s account is the existence of contexts such as (21) and (22), where the common distribution predicted for all ‘fact’ complements breaks down. The question arises of how the additional factive complements identified in the present work behave. Given the interpretive similarities which CHCs were shown to hold

⁸ *Believe* does permit *that*-clause complements, but only of the non-factive type. In this regard it contrasts with *detail*, which permits neither factive nor non-factive *that*-clause complements. See Chapters 3, 4 and 6 for discussion of factivity, including the tests used to distinguish factive and non-factive complement clauses.

in common with both exclamatives and factive *that*-clauses, being likewise factive (see discussion in Chapter 4, section 4.4.1), it seems that they would also qualify as ‘facts’ under Ginzburg & Sag’s system. Resolutives are already treated as ‘facts’ by Ginzburg & Sag (2000: 74), although they originate as ‘questions’ and are coerced into ‘facts’ by certain predicates.⁹ As the ‘coercion’ mechanism they posit is specific to their particular theoretical implementation, and as there seem to be good grounds for treating resolutives on a par with other FCCs, both in terms of their internal syntactic and semantic properties and, as will be shown shortly, their distribution, I abstract away from this distinction, and also treat resolutives as facts in terms of Ginzburg & Sag’s account.

It was in fact already illustrated in examples (15)-(18), presented in section 5.2.1.4 above, resolutives and CHCs consistently distribute alike with exclamatives. Putting this data together with that presented in (19)-(21) makes clear that the distinction in distribution noted amongst factive complements holds not only between factive *that*-clauses and exclamatives, but rather between factive *that*-clauses on the one hand, and resolutives, exclamatives and CHCs on the other. These patterns are presented in (23)-(26), and summarised in Table 5.¹⁰ Any predicate which permits one of exclamatives, CHCs and resolutives as complements, automatically permits the other two. Conversely, any predicate which excludes one of these three FCCs as complement, also excludes the other two. In other words, resolutives, exclamatives and CHCs show the same distribution. This is frequently, but crucially not always, held in common with factive *that*-clauses.

⁹ In ‘limiting the coercion mechanism to a selected class of predicates’ (Ginzburg & Sag 2000: 76), the authors are able to account for cases where it appears that factive *that*-clauses and exclamative complements are permitted, but resolutives are not, as is claimed to be the case under emotive factive predicates such as *regret* and *resent*. These admit ‘fact’ complements (hence exclamatives and factive *that*-clauses) but, unlike non-emotive factives such as *forget*, do not have the ability to coerce ‘questions’ into ‘facts’ (thus do not allow resolutives). In 5.3.2.4.4b below, I challenge the idea that resolutives are excluded under the emotive factives, noting that Ginzburg & Sag (2000: 77 f.n.27) themselves concede that not all speakers reject all interrogative complements to the emotive factives, however.

¹⁰ The exclusion of *that*-clause complements under *describe* has been challenged. Reviewers to earlier work citing these data have provided apparent counter-examples to this claim. None of these examples I find grammatical however, so the claim holds at least for my own variety of English, which I am documenting here (see discussion of the methodology in 5.3.2.1). Note that the majority of putative counter-examples appear to emanate from non-native English speaking sources, as the names of the authors to (i) suggest. Furthermore, even if certain native English speakers do accept *that*-clauses under *describe*, this is not at odds with any of the empirical generalisations made in this chapter. Rather, it simply means that for these speakers *describe* rather patterns like *find out/see/forget* in terms of its complementation possibilities. See also footnote 75 below.

(i) Kiebert et al. describes that DSLs can increase flexibility, productivity and reliability. From ‘Domain-Specific Languages in Practice: A User Study on the Success Factors’, Felienne Hermans, Martin Pinzger, and Arie van Deursen (2009: 424), in A. Schürr and B. Selic (eds.): *MODELS 2009*, LNCS 5795. Berlin/Heidelberg: Springer, 423–437.

- (23) a. # We believed/thought/claimed [that it was a dreadful experience].¹¹
 b. * We believed/thought/claimed [where they had fled from].
 c. * We believed/thought/claimed [what a dreadful experience it was].
 d. * We believed/thought/claimed [how they couldn't return home].
- (24) a. We found out/saw/forgot [that it was a dreadful experience].
 b. We found out/saw/forgot [where they had fled from].
 c. We found out/saw/forgot [what a dreadful experience it was].
 d. We found out/saw/forgot [how they couldn't return home].
- (25) a. * We described/detailed/discussed [that it was a dreadful experience].
 b. We described/detailed/discussed [where they had fled from].
 c. We described/detailed/discussed [what a dreadful experience it was].
 d. We described/detailed/discussed [how they couldn't return home].
- (26) a. We are sorry/happy/glad [that it was a dreadful experience].
 b. * We are sorry/happy/glad [where they had fled from].
 c. * We are sorry/happy/glad [what a dreadful experience it was].
 d. * We are sorry/happy/glad [how they couldn't return home].

Table 5 - Additional contexts for FCC distribution

	factive <i>that</i> - clause	resolutive	exclamatives	CHCs
<i>believe/think/claim</i>	*	*	*	*
<i>find out/see/forget</i>	√	√	√	√
<i>describe/detail/discuss</i>	*	√	√	√
<i>be sorry/happy/glad</i>	√	*	*	*

These patterns are problematic on the view that matrix predicates select for FCC complements on the basis of interpretive type. There are only two options for how a predicate behaves in relation to ‘fact’ complements: a matrix predicate either permits all such complements (as *find out*, *see* and *forget* do) or disallows all such complements (as *believe*, *think* and *claim* do). In a system where matrix predicates select complements on the basis of interpretive type, FCCs of the same interpretive type should not diverge in distribution, or at least not with the regularity noted here, which makes clear that these are not just occasional exceptions. Thus this gives no way to account for the fact that there are predicates like *describe*, *detail* and *discuss* or *be sorry*, *be happy* or *be glad* allow certain ‘fact’ complements but not others, nor for the fact that this split is always such that factive

¹¹ # indicates that the string in (23a) is grammatical, although not on the intended reading. *Believe*, *think* and *claim* permit non-factive but not factive *that*-clause complements.

that-clauses show one pattern of behaviour, resolutes, exclamatives and CHCs another, suggesting some kind of principled split in the class of ‘facts’.

It might seem that one approach to capturing these empirical facts in the spirit of Ginzburg & Sag (2000) would be rather to posit a single interpretive type for resolutes, exclamatives, with factive *that*-clauses belonging to a different type. Yet it is hard to conceive of an over-arching semantic characterisation for resolutes, exclamatives and CHCs which does not also extend to cover factive *that*-clauses, given that CHCs are very similar (although not identical) in interpretation to factive *that*-clauses, as was discussed in section 4.4. Yet were we to rather pursue a syntactic approach, it is equally hard to imagine a syntactic characterisation for these three FCCs which excludes true interrogatives, which are similarly *wh*-clause complements. There thus seems little motivation for regarding resolutes, exclamatives and CHCs as a single clause-type. This suggests that it is not clause-type which is responsible for their common distribution.

5.2.3 Selection for clause-type: conclusions

Despite the differences between the systems, in terms of both implementation and theoretical framework, the conclusion reached for Ginzburg & Sag’s (2000) account is the same as that for those of Grimshaw (1979) and Rizzi (1997): accounts which posit FCC selection by matrix predicates on the basis of the clause-type of the clausal complements cannot account parsimoniously for the empirical patterns, a problem which only becomes more intractable in the face of the broader range of empirical data presented here. Once we have distinguished a suitably fine-grained inventory of clause-types, on the basis of a detailed consideration of their syntactic and interpretive properties, then we see that it is not the case that each type shows its own unique distribution, as is predicted to be the case in an approach in the spirit of Grimshaw (1979), discussed in section 5.2.1. Under such an approach, the common distribution of three syntactically and semantically distinct FCCs - resolutes, exclamatives and CHCs - is a surprising coincidence, which can only be accounted for by stipulation. Yet, as we saw in section 5.3.1, extending Ginzburg & Sag (2000)’s account - which similarly embraces the view that FCCs are selected on the basis of clause-type, but posits a broader type ‘fact’ to capture the (interpretive) commonalities of several FCCs – although giving the scope to capture the commonality of resolutes, exclamatives and CHCs, fails to give a means to explain the divergence in distribution of factive *that*-clauses from that of these other factive FCCs. It thus also fails to capture the broader range of data under consideration here. The fact that neither Grimshaw (1979) nor Ginzburg & Sag (2000) can (be extended to) account for this broader range of empirical data suggests that the issue lies not in the specific details of these accounts, but more fundamentally with the idea that the distribution of finite clausal complements is determined on the basis of their clause-type. Whether we take a syntactic approach to selection or a

semantic approach, whether we implement it à la Grimshaw or à la Ginzburg & Sag, we fail to capture the full range of empirical facts.

Nevertheless, the idea found in Ginzburg & Sag of looking for commonalities across FCCs with a common distribution seems a fruitful direction to pursue. For the purposes of distribution, resolutives, exclamatives and CHCs behave as one ‘type’, always patterning alike. Yet all the time that we are still thinking in terms of the distribution of FCCs being conditioned by clause-type, the difficulty remains of finding a categorisation that makes the right cut, such that resolutives, exclamatives and CHCs are grouped together to the exclusion of the interpretively similar factive *that*-clauses, and syntactically similar interrogative *wh*-clauses. In section 5.4 I argue that rather than abstracting away to a loose over-arching category with resolutives, exclamatives and CHCs as members, the common distribution of these FCCs can only be explained by looking internally to these clauses for properties that they hold in common. Factivity will in fact play a crucial role, even though alone it is not sufficient to distinguish between FCCs. Prior to this, however, I first present an overview of the full range of distributional patterns for the FCCs under consideration.

5.3 The distribution of English finite clausal complements

In the course of section 5.2 above, I presented certain key empirical patterns which emerge when the distribution of the six FCCs identified in this work are taken into consideration. These were selected to illustrate the problems that accounts positing FCC-selection on the basis of clause-type face, in the light of the more detailed empirical data under consideration in this work. In order to place these in context, and to show that the trends observed - most notably the common distribution of resolutives, exclamatives and CHCs - hold as general patterns, not just in the limited range of environments presented above, in this section I consider the distribution of all six FCCs under a much wider range of CP-selecting predicates. Whilst previous studies have looked in detail at the distribution of two or three types of FCC, to the best of my knowledge, no account to date considers the distribution of such a wide range of FCCs, under such a broad range of predicates. I begin by presenting existing classificatory systems of CP-selecting predicates in section 5.3.1, before turning to my own system of classification, and the methodology which lies behind it, in section 5.3.2. Table 11 gives an overview of the full range of results.

What is distinctive about my account is that no pre-defined predicate classes are made use of. Starting with pre-established predicates classes runs the risk of obscuring distributional patterns, and raises questions about the reality of the distinctions between these categories, beyond being a classificatory device made use of by linguists. The six classes of predicates

which I identify have a clear empirical basis, as they are defined purely on the basis of the range of finite clausal complements which they permit. Whilst this is descriptive rather than explanatory, such an approach is initially necessary in order for the empirical patterns to emerge. Only then can we consider how best to characterise them. It actually transpires that some of the classes which emerge tally quite well with predicate classes which have independently been defined in the literature, on the basis of a common semantic component held in common between the predicates, for instance, lending additional support to these established categories.

5.3.1 Predicate classes: existing accounts

Three broad approaches to the classification of FCC-embedding predicates can be identified in the literature, which I discuss in turn in sections 5.3.1.1-5.3.1.3 below. As will be made clear, these approaches are not altogether distinct, and division of the discussion in this way helps to highlight broad patterns, aiding the clarity of presentation, but is by no means definitive. For each approach discussed, I give a brief overview of accounts which are representative of this view, and point out certain limitations which they face. My own approach is intended to avoid or reduce these difficulties as much as possible.

The first kind of approach, discussed in 5.3.1.1, begins with the matrix predicates themselves, and categorises these on the basis of lexical or semantic properties which they hold in common. Only then are the kinds of complement clause which these predicates can embed considered. This has proved a popular approach, with many different systems proposed, a fact which in itself highlights a weakness of the approach. There are in principle as many possible systems as there are linguists who can make a convincing case for predicates being classified in a particular way. Whilst such an approach may be helpful as a classificatory tool, it is unclear that it is revealing when it comes to the distributional patterns which are the main concern here.

The second approach, discussed in 5.3.1.2 below, seems more promising in this regard, as it looks to the behaviour of (particular types of) complement clauses in determining classes of matrix predicates. Predicates whose complements show similar patterns of syntactic or semantic behaviour are taken to form a class. However, given that there is a tendency to attribute these differences to distinctions between the matrix predicates, rather than to the complement clauses themselves, it can be hard to distinguish accounts of this type from those of the type discussed in 5.3.1.1. The divide is at any rate much less sharp than the division into sub-sections for the purposes of the discussion here might otherwise suggest. Furthermore, in some cases there appears to be a certain circularity to the argumentation - complement clauses show the behaviour they do because of particular properties of the class of predicates they occur under. Classes of predicates are often defined on the basis of the

behaviour their complements show. Descriptively, this is unproblematic, but the difficulty is when such accounts are claimed to provide an explanation of the distributional facts.

The third approach to the classification of matrix predicates - and the approach which I myself take - involves drawing up classes of predicates on the basis of the range of clausal complements which they permit. There is potentially some overlap here with the type of approach discussed in 5.3.1.2, although here no attempt is made to characterise classes of predicates on any grounds other than the range of FCCs they permit. To my knowledge, there is only one previous account to date which takes this approach, and that is Ginzburg & Sag (2000). Whilst the general approach is the same, my account differs greatly to Ginzburg & Sag's in terms of implementation. Ginzburg & Sag discuss the distribution of FCCs on the basis of the interpretive types they identify: propositions, questions and facts. Yet the shortcomings of approaches which appeal to clause-type to capture the distributional patterns were discussed at length in section 5.2 above, with a particular focus on Ginzburg & Sag's work in section 5.2.2. There, for instance, the category 'fact' was already shown to mask the distinct distribution of factive *that*-clauses and exclamatives in certain contexts. My account has all the benefits of Ginzburg & Sag's, in letting predicate classes emerge from the distribution of clausal complements, rather than imposing them on the data, with the added advantage of drawing on the more nuanced distinctions between FCCs made here. Whilst in any system, the results gained are a product of the categories postulated, the more syntactic and semantic evidence there is in support of these categories, the more valid they are. The clear distributional patterns which emerge from my approach in turn lend further support to the distinctions I draw.

5.3.1.1 Predicate classes based on the (lexical/semantic) properties of predicates

Legate (2010: 129) draws on Levin's (1993) system of predicate classes in her discussion of the distribution of CHCs. Note that as Levin (1993: 18 f.n. 10) expressly states, CP complements are not taken into consideration in drawing up her system of classification, 'which restricts itself to verbs taking noun phrase and prepositional phrase complements'. Nevertheless, as one of the few works prior to the current one to consider the distribution of CHCs, I summarise Legate's findings in Table 6.¹²

¹² Whilst my focus is upon the distribution of CHCs (and other FCCs) in Present Day English (PDE), observations about their distribution have also been made in historical work. In the course of his brief discussion of CHCs, Willis (2007: 434) claims that complementiser *how* is currently 'used in (non-*wh*) complement clauses to verbs of saying and knowing'. It is clear even from those contexts alone which Legate (2010) provides, summarised in Table 6, that this is not sufficient to characterise the distribution of CHCs. Furthermore, CHCs were already shown to distribute as *wh*-clauses (see sections 4.3 and 5.4).

Table 6 - CHC distribution (from Legate (2010: 129), using predicate classes from Levin (1993))

predicate class	example	CHC example
conjecture	<i>admit</i>	Kenneth admitted how there are times when he struggles to keep control of his anger. He explained how, like Wanda, he tries very hard not to counter rudeness with rudeness. (www.treachercollins.org/essays/kendraswish.html)
transfer of message	<i>explain</i>	I don't want to promise them how they can lose weight or get that perfect body; that would be telling a lie. (funmotivationalspeaker.blogspot.com/2008/10/i-have-vision-to-speakabout-how-fun-it.html)
future having	<i>promise</i>	I don't want to promise them how they can lose weight or get that perfect body; that would be telling a lie. (funmotivationalspeaker.blogspot.com/2008/10/i-have-vision-to-speakabout-how-fun-it.html)
concealment	<i>hide</i>	And Red can't hide from me how he likes it, too. (gutenberg.net.au/ebooks06/0608291.txt)
characterize	<i>remember</i>	Remember How Whites Were Too Racist to Vote Obama? (newsbusters.org/blogs/warner-todd-huston/2008/11/07/remember-howwhites-were-too-racist-vote-obama)
perception (see)	<i>notice</i>	Ever noticed how you always have your computer turned on when you realise you need to clean the mouse (clean-n-go.datamystic.downloadsoftware4free.com/)

On the basis of his study of Middle English sermons, Warner (1982: 185) identifies the following classes of predicates as permitting CHCs: '(a) Verbs of informing: SEIE, SPEKE, TECHE, TELLE, WARNE, WRITE (b) Verbs of knowing, perceiving and considering: KNOWE, MARKE, HAVE MYNDE, SEE ?PENKE, WITE (c) Verbs of interpretation: BITOKENE, FIGURE'. In the majority of cases, the PDE equivalents to these predicates also permit CHCs (see Table 11 in section 5.3.2 below). In PDE, not all CHC-embedding predicates fall into one of these three categories however (*funny*, *obvious*), and not all predicates which fall into these classes permit CHCs (*inform* itself does not for instance). The fact that the range of CHC-embedding predicates Warner lists is more limited than that identified for PDE may simply reflect the limited range of contexts in the texts he considers, rather than being indicative of a diachronic change in the distribution of CHCs.

This hypothesis is lent weight by the fact that López Couso & Méndez Naya's (1996: 349) 'examination of the OE [Old English], ME [Middle English] and eModE [Early Modern English] sections of the Helsinki Corpus, and of additional material, reveals that Warner's observation also applies for both earlier and later stages', of the language as 'the selection of declarative *how* has proved to be sensitive to the semantic class of the matrix predicate. They refine the relevant semantic classes of matrix predicates to be 'utterance predicates', 'predicates of demonstration', 'predicates of perception' and 'predicates of knowledge and acquisition of knowledge'. The same shortcomings as noted for Warner's categories hold when these are applied to the distribution of CHCs in PDE, however. Furthermore, whilst it may be the case that 'all the above mentioned classes of predicates may also take a *that*-complement' (López Couso & Méndez Naya 1996: 349), at least in PDE this is not a pre-requisite for a predicate to be able to take *that*-clause complements, as the discussion in sections 5.2.2.2 and 5.3.4.2.6 makes clear.

psych (admire)	<i>hate</i>	I hate how she claims to be a New Yorker. She is not a native New Yorker! (alfalasteenyia.blogspot.com/2008/08/ten-things-i-hate-about-hillary-9.html)
psych (amuse)	<i>outrage</i>	Chuck Baldwin is outraged by how his “conservative” comrades are eagerly granting omnipotent status to politicians, of all people—the very breed whom the Founders warned the citizenry to watch with vigilance. (www.issues-views.com/index.php/sect/3003/article/3953)
acquisition of information (learn)	<i>find out</i>	Looking for an apartment to buy, we found out how apartments are very expensive compared to our income. (www.islamonline.net/servlet/Satellite?c=Article_C&cid=1225119313129&pagename=Zone-English)
judgment	<i>forgive</i>	I can never forgive you for how you hurt him and arsed him around, and how you thought it would be cool to get me in hospital for expressing an opinion. (dodgeman.wordpress.com/2007/01/25/stoled-off-jims-myspacebulletin/)
manner of speaking	<i>whisper</i>	Whispered how we would be together forever (www.poetry.com/dotnet/P8992859/999/1/display.aspx)

The findings in Table 6 do not reveal much about CHCs, besides their ability to occur under a broad range of matrix predicates, particularly as, by Legate’s own admission, the data presented, illustrates ‘(a subset of) the range of matrix predicates that combine with a *how*-clause’ (Legate 2010: 129). This is sufficient for Legate’s (2010: 129) purposes, as the point she wishes to make is simply that ‘the *how*-clause enjoys a wide distribution’. No commonalities emerge across the predicate classes which can embed CHCs, and almost entirely lacking is any discussion of predicates which are unable to embed CHCs. Yet knowing which predicate classes are incapable of embedding CHCs is just as crucial as knowing which predicate classes are able to do so, in any attempt to define what the former contexts have in common. The only discussion of the exclusion of CHCs under certain predicates is the footnote given in response to the ‘conjecture’ class, where Legate (2010: 129 f.n.13) notes that ‘[s]ome of the verbs in this class (e.g. *deny*) do not allow the *how*-clause due to their incompatibility with its presupposition of truth’. This introduces another factor which governs the range of predicates under which CHCs can occur, and which cross-cuts the predicate classes used to categorise them. Similarly, accounting for the fact (not observed by Legate) that CHCs are possible under *regret*, but not under the near-synonymous *be sorry* seems impossible on an approach where distribution is related to lexico-semantically defined predicate classes.

Once it emerges that the (in)ability of a CHC complement to occur under a particular predicate is not determined (solely) by the class to which the predicate belongs, the use of Levin’s (1993) system in the discussion of CHCs seems to serve little purpose at all. Even

were the information on the distribution of CHCs complete, few conclusions can be drawn whilst it is so classified. Note that this is not a weakness of Levin's (1993) system in itself which, as noted above, was not drawn up with the aim of classifying FCCs. Legate's (2010) application of the system in her discussion of FCCs does illustrate, however, that starting from such lexico-semantically defined categories does not prove revealing when it comes to a consideration of the distribution of FCCs. For this reason, my approach is rather the inverse of this: I begin by considering the distribution of a wide range of FCCs, and then look for the commonalities across predicates which emerge as a class when defined on the range of FCC complements they permit.

Baker (1968) and Karttunen (1977) are interested in the distribution of what they term 'indirect questions' (equivalent to my 'true interrogative' and 'interrogative' classes combined). They take as their starting point the predicates which can embed interrogatives, and looks for semantic commonalities amongst these in order to further sub-categorise the predicates which are capable of embedding indirect questions. Baker (1968) claims that such predicates can all be related to four basic predicates: *know*, *decide*, *matter*, and *depend*. Karttunen (1977) offers a more detailed system of classification, identifying nine sub-classes of predicate which permit indirect question complements, summarised in Table 7 below. Yet neither is particularly revealing when it comes to the distribution of FCCs. Grimshaw (1979) criticises Baker's (1968) approach on both descriptive and explanatory grounds. She notes that although being broadly synonymous to *know*, *decide*, *matter* or *depend* 'does seem to be a necessary condition for a predicate to select interrogatives...it is not a sufficient one' (Grimshaw 1979: 318). She notes for instance that *conclude* qualifies as a member of the 'decide' class, and yet fails to embed indirect questions. Her further criticism is that even if this observation were descriptively accurate, in order for it to explain the distribution of indirect questions in the way that it is claimed to 'it would be necessary to show that their interpretation is consistent with the semantics of all predicates pertaining to knowledge, decision, import, or dependency, but inconsistent with all other predicates' (Grimshaw 1979: 318).

Karttunen's (1977) more detailed classificatory system is open to the same criticisms: the predicate *inform* is close in meaning to *tell*, and thus seems to qualify as a member of the class of verbs of communication, yet the former, unlike the latter, does not allow indirect questions as complements, as Grimshaw (1979: 324) shows. There are two other limitations of Baker (1968) and Karttunen's (1977) accounts in relation to my goal of charting the distribution of a broad range of FCCs. The first is that neither makes a distinction between the two kinds of interrogative clause under consideration here (see discussion in section 3.2.1). Furthermore, neither system takes into account the distribution of other kinds of FCC - *know* differs from *depend (on)* in its ability to embed *that*-clause complements as well as indirect interrogatives, for instance. The sub-classes of predicate posited by Baker (1968)

and Karttunen's (1977) thus prove to be neither descriptively accurate, nor explanatory when it comes to the distribution of 'indirect questions', let alone for other FCCs.

Table 7 - Karttunen's (1977) classes of indirect question-embedding predicates.

indirect question-embedding verb class	example
verbs of retaining knowledge	<i>know</i>
verbs of acquiring knowledge	<i>learn</i>
verbs of communication	<i>tell</i>
verbs of decision	<i>decide</i>
verbs of conjecture	<i>guess</i>
verbs of opinion	<i>be certain about</i>
verbs of inquisition	<i>ask</i>
verbs of relevance	<i>matter</i>
verbs of dependency	<i>depend on</i>

5.3.1.2 Predicate classes based on the internal (syntactic/semantic) properties of complements

The divide between approaches which identify predicate classes on the basis of semantic distinctions between predicates, and those which draw up predicate classes on the basis of the properties of the complement clauses these embed is far from absolute, especially given that many accounts ultimately attribute differences in the behaviour of complement clauses to distinctions between the predicates which embed them. I categorise the accounts of Kiparsky & Kiparsky (1971) and Hooper & Thompson (1973) in the current section however, as they all dedicate considerable attention to identifying nuances in the syntactic or semantic behaviour of (particular types of) complement clauses themselves.

Given Kiparsky & Kiparsky's (1971: 345) claim to determine classes of predicates on the basis of 'systematic differences' in semantics between these, at first sight it may appear that their account would be better classified with those of section 5.3.1.1. They distinguish two broad classes of predicate, factive and non-factive, examples of which are provided in Table 8. Each class is further sub-divided on the basis of whether the predicate in question takes object clauses or rather subject clauses.¹³ But whilst Kiparsky & Kiparsky position their account as one in which classes of predicates are defined semantically, the diagnostics for

¹³ Kiparsky & Kiparsky (1971: 363) further differentiate between emotive and non-emotive complements, where 'Emotive complements are those to which the speaker addresses a subjective, emotional or evaluative reaction'. This cross-cuts the factive distinction, such that both emotive factives and emotive non-factives, and non-emotive factives and non-emotive non-factives can be found. I discuss emotive factives below, in 5.3.2.3 and 5.3.2.4.

this rely crucially on the behaviour of the complements taken by these predicates. The complements of factive predicates are presupposed to be true, those of non-factive predicates are asserted. This has an influence both upon the interpretation which a *that*-clause complement receives, and upon the range of other complement types which a predicate is additionally able to embed. It is claimed, for instance, that ‘[o]nly factive predicates can have as their objects the noun *fact* with a gerund or *that*-clause’ (Kiparsky & Kiparsky 1971: 347), although as discussed in section 3.2.2.2 (D), there are exceptions to this generalisation, as Kiparsky & Kiparsky 1971: 348 f.n. a) themselves note. Conversely, ‘[o]nly non-factive predicates allow the accusative and infinitive construction’ (Kiparsky & Kiparsky 1971: 348). As my focus is on finite clausal complements alone, I do not pursue these particular observations in detail. Note however that with its reference both to semantic distinctions between predicates, and corresponding differences in the complements these allow, discussion of Kiparsky & Kiparsky’s (1971) account serves as a transition between the accounts of this section, which focussed on lexico-semantic distinctions amongst predicates, and those of the following section, where the predicate classes drawn up are based on the range of complements permitted alone.

Table 8 - Examples of factive and non-factive predicates from Kiparsky & Kiparsky (1971: 345)

factive		non-factive	
object clause	subject clause	object clause	subject clause
regret be aware (of) grasp comprehend take into consideration take into account bear in mind ignore make clear mind forget (about)	significant odd tragic exciting relevant matters counts makes sense suffices amuses bothers	suppose assert allege assume claim charge maintain believe conclude conjecture intimate deem	likely sure possible true false seems appears happens chances turns out

deplore resent care (about)		fancy figure	
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In order to account for semantic distinction which they identify, Kiparsky & Kiparsky (1971) posit different underlying syntactic structures for factive and non-factive *that*-clause complements. The range of other structures possible as the complement to a predicate is determined by which of these structures a predicate embeds: gerunds are posited to be derived by transformation from an underlying factive *that*-clause, for instance. The crucial question then is what determines whether a matrix predicate selects factive *that*-clause complements, non-factive *that*-clause complements, or rather both. Kiparsky & Kiparsky are not explicit about the differentiation of predicates in the way that they are for complement clauses, which makes it difficult to evaluate what exactly they propose. At one point they note in passing that predicates receive a ‘specification in the lexicon as to whether their complements are factive’ (Kiparsky & Kiparsky 1971: 360). This seems to suggest that they do not claim to offer a deep explanation for why a particular predicate permits factive or non-factive *that*-clause complements.

In their conclusion, however Kiparsky & Kiparsky (1971: 365) state that this ‘choice is in large part predictable from the meaning of each predicate’. The meaning distinction intended is presumably once again that of factivity/non-factivity, which raises certain issues. The first is in knowing how the factive or non-factive status of a predicate is to be identified without reference to the behaviour of the complement clause it embeds, which Kiparsky & Kiparsky claim encodes the factive/non-factive distinction independently. There seems to be circularity involved in arguing that the predicates which select factive *that*-clause complements can be identified as factive on the basis of the behaviour of these complements.¹⁴ Secondly, without a more nuanced system of meaning distinctions, it seems difficult to distinguish the meaning of predicates with permit only factive *that*-clause complements (e.g. *forget*, according to Kiparsky & Kiparsky) from those which Kiparsky & Kiparsky (1971: 360) claim ‘occur indifferently with factive and non-factive complements’, such as *remember*. Although Kiparsky & Kiparsky do not take factive *wh*-clauses into consideration, the approach they advocate seems to encounter further difficulties in dealing with these. It is far from clear what meaning distinction one could posit between *admit* and *concede*, such that although both accepting factive *that*-clause complements, only the former accepts *wh*-factive clauses, as noted by Grimshaw (1979: 302).

¹⁴ In general there appears to be no consensus in the literature as to whether factivity is a property of matrix predicates, or rather of the clauses which they embed (see discussion in Schulz 2003: Chapter 2). I return to this issue in section 6.2.1.2, where I argue in favour of the latter position.

The strength of Kiparsky & Kiparsky's work is in identifying predicate classes on the basis of the range and behaviour of the complements they permit. This is a strategy which I also adopt. The description of the empirical facts which they provide is valuable, as is their identification of factivity as a factor in determining the distribution of clausal complements. However, despite their claim to the contrary, their account does not give a fully worked out explanation for why factive and non-factive *that*-clauses distribute the way that they do. A deeper understanding of the semantic properties of matrix predicates is required before this can be offered. As my focus is on characterising the distribution of FCCs, I do not tackle this question in this work, and make no claims that the system of predicate classes which I draw up is anything other than a more accurate description of the empirical facts.

Hooper & Thompson (1973) develop further the idea of distinguishing predicates on the basis of the behaviour of their *that*-clause complements in terms of (non-)factivity, proposing a more nuanced series of distinctions than is made by Kiparsky & Kiparsky (1971). The result, summarised in Table 9, is a system involving five distinct classes of *that*-clause complement-embedding predicates. The predicate classes are distinguished by subtle distinctions in the behaviour of their *that*-clause complements, with a focus on the availability of what Hooper & Thompson (1973), following Emonds (1970, 1976), term root transformations (RT), referred to elsewhere in the literature (see e.g. Aelbrecht, Haegeman & Nye 2012, Haegeman 2012), and indeed in this work, as main clause phenomena (MCP). Examples of these include argument fronting and negative preposing, which was already discussed in section 3.2.2.2 (B). Given that my focus is on a broader range of FCCs, I do not discuss the particular observations they make for the behaviour of *that*-clause complements under each class of predicates, instead referring the interested reader to Hooper & Thompson (1973).

Table 9 - Predicate classes from Hooper & Thompson (1973: 473-474)

<i>non-factive</i>			<i>factive</i>	
A	B	C	D	E
say report exclaim assert claim vow be true be certain be sure be obvious	suppose believe think expect guess imagine it seems it happens it appears	be (un)likely be (im)possible be (im)probable doubt deny	resent regret be sorry be surprised bother be odd be strange be interesting	realize learn find out discover know see recognize

The source of these distinctions is implied to be in the (non-)factivity of the predicate itself, although by their own admission, Hooper and Thompson do not formalise the patterns they

observe. They are committed to the view that they are a result of semantic rather than syntactic distinctions, however, claiming that ‘[i]t does not seem possible to define the domain of an RT in terms of syntactic structures in any general way’ (Hooper and Thompson 1973: 495). This seems to suggest that the situation that they envisage is one of a single syntactic type of *that*-clause complement, which behaves differently in each of the five different semantic contexts which they identify, although they do not take an explicit stance on this matter. This avoids the issue of circularity in matching complement types to predicate types which arose for Kiparsky & Kiparsky (1971). In relation to my own account, the work of Hooper & Thompson might seem to raise the question of whether we should not rather identify five distinct classes of *that*-clause complement instead of two. In theoretical terms, as discussed in section 2.5.4, the number of clause-types we identify depends to a certain extent on the perspective we take - whether we look from ‘close-up’ positing new types on the basis of minor distinctions, or at more of a remove, identifying broader trends. Offering a broad picture of the distribution of several kinds of FCCs is inevitably at the expense of being able to detail minute variations amongst the exponents of what is here taken to be a single kind of clause-type, and the results obtained for their distribution will also inevitably differ. The distinctions made here between FCCs have been motivated at length however, on the basis of a considerable amount of empirical data, and the fact that distributional regularities emerge from such an approach reinforces its value. Note furthermore that despite the identification of five classes of matrix predicates, with regard to the occurrence of MCP/RT in *that*-clauses there are only two possible patterns which emerge from Hooper & Thompson’s (1973) account: MCP are permitted, or MCP are not permitted, correlating with the non-factive/factive distinction. There is thus both theoretical and empirical motivation for my choice to identify only two kinds of *that*-clause complement.

As Hooper & Thompson’s account deals only with distinctions amongst *that*-clauses, it does not tell us anything about which other types of FCC complement, if any, these classes of predicates embed. As will be discussed in the course of section 5.3.2, whilst the members of certain of the classes Hooper & Thompson identify behave relatively uniformly in this regard, in other cases members of the same class show divergent behaviour when their ability to take the other four kinds of FCC under consideration here is tested. Nor do Hooper & Thompson engage with the question of why these predicates specifically, and not others, take *that*-clause complements as opposed to other FCCs in the first instance. Whilst *that*-clause complements are the only factive FCCs considered in Hooper & Thompson’s account, as was made clear in the course of Chapters 3 and 4, factivity is not only of relevance to a discussion of *that*-clause complements. It is also a property which has been taken to characterise resolutive, exclamative and CHCs, even if the majority of the discussion of factivity in the literature still centres on *that*-clauses. The significance of this for the distribution of FCC will be made clear in section 5.4.

5.3.1.3 Predicate classes based on the range of complements permitted

The final approach to the categorisation of predicates into classes which can be identified shares with those discussed in section 5.3.1.2 the fact that these classes are determined on the basis of the behaviour of complement clauses alone.¹⁵ As with the accounts discussed in that section, classification begins not by looking for lexical or semantic properties held in common by predicates. Unlike the accounts of section 5.3.1.2, however, the focus is not upon subtle nuances in behaviour of a single kind of complement, which are then frequently attributed to the embedding predicate itself, but to the possibility of occurrence of a broad range of FCCs under a wide range of predicates. This is seen to be the starting point for then identifying commonalities amongst the predicates of a given class, which may eventually lead to an explanation for their complementation possibilities. This relies first on an accurate presentation of the empirical data, however.

Ginzburg & Sag (2000: 127-128) remark on the novelty of their attempt ‘to provide a comprehensive system of semantic categories which would partition the class of clausal embedding predicates according to their selectional requirements [footnote omitted]’ (Ginzburg & Sag 2000: 127). Nevertheless, in certain regards Kiparsky & Kiparsky’s (1971) account, discussed in section 5.3.1.2, is in a similar spirit, in so far as the (un)availability of a particular range of complement types under a particular predicate is taken to be indicative of the membership of that predicate in a particular class, albeit if the complements under consideration are not FCCs. As discussed in section 5.2.2 above, Ginzburg & Sag posit the selection of clausal complements by matrix predicates on the basis of their interpretive type. To date, we have focussed on three types: propositions (p), questions (q) and facts (f). They do in fact posit a fourth type in their system, outcomes (o), but as the realisations of these are taken to be ‘infinitivals’ and subjunctives (Ginzburg & Sag 2000: 78-79) - not finite clausal complements, which are the focus of this work - they are not relevant for present purposes. Their distribution is nevertheless included in Table 10, which summarises the potential range of predicate classes predicted on the basis of the distribution of these four complement types. Predicate classes are defined on the basis of the range of complement types they permit, whether this be a single type, or a range of such types. The first column shows the 15 predicate classes which in theory could arise from the mathematically possible combinations of complement types, with the name given to the class where appropriate. The second column provides examples of members of the class, or ‘??’ where a potential class does not appear to be realised. Eight of the 15 potential classes are realised, a point returned to below.

¹⁵ Levin’s (1993) takes a similar approach to the classification of DP- and PP-selecting predicates.

Ginzburg & Sag (2000: 127 f.n. 112) emphasise that '[t]his table was compiled on the basis of casual introspection, not on the basis of corpus study. Given this, our conclusions must be viewed as tentative'. Empirically, we already saw in section 5.2.2 above that there are some challenges to their account. Examples of additional predicates were given under which the distribution of factive *that*-clauses and exclamatives diverged - a fact obscured by, and unable to be accounted for, in their system, where both are of the type 'fact'. They do not consider resolutive as an independent complement type, nor do they take into consideration CHCs, meaning that the common distribution of these and exclamatives does not emerge. Given these empirical short-comings, I do not discuss the specific conclusions which Ginzburg & Sag (2000: 129) draw on the basis of the patterns presented in Table 10, but rather turn to the more general properties of an account which distinguishes predicate classes on the basis of the distribution of different complements, which is the same approach that I take.

Table 10 - Predicate classes defined on the basis of the distribution of four interpretive types (based on Ginzburg & Sag 2000: 128)

Name of class	Representative members
+q (QE [Question-Embedding] predicates)	<i>ask, wonder, investigate</i>
+p (TF [Truth-Falsity] predicates)	<i>believe, deny, prove</i>
+f (factives)	<i>know, discover, forget</i>
+o (mandatives)	<i>demand, require, want</i>
+q, +p	??
+o, +f	??
+o, +p	<i>be conceivable, be reasonable</i>
+p, +f (resolutive)	<i>tell, guess, predict</i>
+q, +f	??
+q, +o (decidatives)	<i>be resolved, decided</i>
+q, +f, +o	<i>intrigue, astound</i>
+o, +p, +f	??
+o, +p, +q	??
+f, +p, +q	??
+q, +p, +f, +o ¹⁶	??

¹⁶ Ginzburg & Sag (2000: 128) do not in fact include the potential predicate class which permits all four interpretive types, neither in their table nor in the accompanying discussion. I assume this to be an error rather than a principled

Despite the differences between our systems, two of the general conclusions reached by Ginzburg & Sag are replicated in my own work. The first is that ‘complex categories do exist’ (Ginzburg & Sag 2000: 127). This is to say that in addition to classes of predicates which admit only one kind of complement from the range posited, however these are defined and differentiated, there are predicate classes which permit multiple kinds of complement. Ginzburg & Sag’s class of resolutes are one such example, permitting both ‘propositions’ and ‘facts’ as complements, as are the factives (class 4) in my own account, which permit factive *that*-clauses as well as resolutes, exclamatives and CHCs. The second, given this, is that ‘not all logically possible categories are instantiated’ (Ginzburg & Sag 2000: 127). Thus for Ginzburg & Sag there are no predicates which permit both questions and propositions as complements, just as in my own account there is no class which permits both true interrogatives and *that*-clause complements, whether factive or non-factive. As is the case for my own account, their goal is to describe the patterns which emerge, even if at times, with remarks such as ‘[t]he generalization about TF [Truth-Falsity - RCN] predicates follows because selection in our system is partly semantic: all TF predicates select for propositions, which neither interrogative nor exclamative clauses denote’ (Ginzburg & Sag 2000: 129) they seem to be claiming the status of explanation for what is really just an alternative description of the empirical facts. Real explanation would give an account for why it is that TF predicates only allow propositions as complements. Yet on the whole they are aware that the presenting the empirical patterns is only the first step. My own conclusion will echo their own remark that ‘[w]e must leave as an important task for future work - supported by cross-linguistics and corpora based investigation - a formal characterization of the space of instantiated categories’ (Ginzburg & Sag 2000: 127).

Note that our accounts differ in that under Ginzburg & Sag’s approach, for complements of each interpretive type which they identify, there is a class of predicates which permit only this type as complements (see the first four columns in Table 10), whereas in my system, as already noted above in section 5.2.1.4 and 5.2.2.2, whilst there are predicates which permit only factive *that*-clauses, only non-factive *that*-clauses and only true interrogatives, resolutes, exclamatives and CHCs always pattern alike. In fact, their argumentation for the existence of the ‘four distinct abstract entity semantic types that clauses can take as their denotation type’ (Ginzburg & Sag 2000: 127) relied ‘in part, on exhibiting classes of predicates that select for one of these semantic types’ (Ginzburg & Sag 2000: 127). The fact that three of the six FCCs which I posit - for which considerable syntactic and semantic evidence was provided for viewing these as distinct clause-types - turn out to distribute alike is, in the context of my account, a strong argument in favour of the view that the ‘types’ relevant for the distribution of FCCs are not equivalent to ‘clause-types’.

exclusion, especially since they include the +q,+f,+o class twice, once with the example predicates given in Table 10, and once with the (incorrect) ‘??’ designation. The total number of potential predicate classes remains 15.

5.3.1.4 Existing accounts of predicate classes: conclusions

Whilst the discussion in the preceding sections is by no means exhaustive, it already gives an indication of the variety of different criteria which can be used to distinguish between matrix predicates, and the wealth of classificatory systems which results. Accounts vary with regard to both the range of predicates and the range of complement clauses which they take into consideration, as well as to whether it is syntactic or semantic behaviour which is deemed of relevance, and as to whether distinctions between complement clauses are a result of distinctions between predicates, or rather exist independently of this, in which case the question of the explanation for the permissible predicate-complement combinations arises. It is inevitable thus that the systems of classification which result differ considerably. It is important to keep in mind that in the vast majority of cases it is not a question of a particular system being ‘correct’ or ‘incorrect’ – they can only be more or less accurate in drawing distinctions between predicates on the basis of whatever property they choose to. Whilst all of these systems thus capture distinctions between predicates which are in some sense real, it is at the same time important to recognise that in all these cases the results obtained are a product of the particular classificatory system opted for. The account which I present in the following section is of course not free from these same constraints. Although I have provided extensive motivation for establishing the six types of FCC which I do, and whilst the regularities which emerge when the distribution of these FCCs is considered provides further confirmation that the distinctions drawn have some validity, as has already been noted, if one chose to take a more or less fine-grained approach, other clause-type distinctions could be imagined. However, my account has the advantage that the only categories I assume at the outset are these six FCCs. I make no assumptions based on pre-existing predicate classes, or semantic properties claimed to distinguish between matrix predicates, but draw up classes of predicates based solely on the range of FCC complements which they permit. To the extent of my knowledge, although there is a precedent in the semantic work of Ginzburg & Sag (2000: 128) no such system has been attempted on such a scale to date.

5.3.2 Predicate classes: a new proposal

As noted above, my account holds in common with Ginzburg & Sag’s (2000) the fact that classes of predicate are defined on the range of complements they permit. It differs, however, in the kind of ‘types’ assumed. As illustrated in detail in Chapters 3 and 4, I differentiate clause-types on the basis of systematic syntactic and interpretive differences. Ginzburg & Sag rather posit ‘interpretive types’, where a single interpretive type may cover FCCs with quite distinct syntactic properties, as is the case for the type ‘fact’, a category to which both factive *that*-clauses and exclamatives belong. The more nuanced distinctions between FCCs which are made in my own account reveal regularities which have until now

gone unnoticed, both in the distribution of particular kinds of clausal complement, and in the combinations of FCC complements which predicates admit. Table 11 below provides an overview of the results of my investigation into the distribution of English FCCs. Before I provide an in-depth discussion and interpretation of the results, I first discuss the methodology used to achieve these in section 5.3.2.1.

Table 11 - Overview of the distribution of finite clausal complements in English: verbal and adjectival predicates

	predicate classes	non-factive <i>that</i> -clause	factive <i>that</i> -clause	CH C	exclam.	res.	interrog .
1	interrogative predicates: <i>wonder; ask; inquire, want to know</i>	n	n	n	n	n	y
2	non-factives: <i>believe; claim; think, have an/no inkling, assert, deny, doubt, seems, happens, appears, true, irrelevant, doubtful, likely, apparent, certain, exclaim. vow, suppose, expect, guess, imagine, (im)possible, (un)likely, hope, find, (im)probable, sure, inform, expect, propose, presuppose, conclude, agree</i>	y	n	n	n	n	n
3	emotive factives (i) <i>afraid, surprised, too bad, flabbergasted, sorry unbelievable, terrible, incredible, fascinating, happy, glad, puzzled,</i>	n	y	n	n	n	n

	<i>concede, sufficient, make sense, (not) count</i>						
4a	cognitive factives (semi-factives) <i>know, find out, realise, discover, learn. hear, remember, admit, divulge, disclose, reveal, figure out, see, hear, recognize, forget, explain, keep in mind, make clear, guess, predict, anticipate</i>	?n	y	y	y	y	n
4b	emotive factives (ii) <i>can't believe, amazing, surprising, resent, regret, odd, strange, interesting, be funny, can't believe, bother</i>	n	y	y	y	?y	n
5	<i>tell, say, report, teach, announce, communicate, obvious, clear</i>	y	?n	y	y	y	n
6	<i>describe; detail; discuss</i>	n	n	y	y	y	n

5.3.2.1 Methodology

The six types of FCC whose distribution I consider, each occupying a column in Table 11 were well-motivated in the course of Chapters 3 and 4, and so I do not consider their properties further here. As has been made clear throughout this work, these clause-types are made use of in full awareness of the fact that other categorisations of clausal complements are imaginable. The strength of the current work is the fact that the criteria upon which these have been established has been made explicit - they do not rely on an intuitive understanding of terms such as 'interrogative' or 'declarative', which have been used in different ways by different authors.

The six types of FCC were tested for their ability to occur under a broad range of CP-selecting predicates. The predicates used are those listed in Hooper & Thompson's (1973) classes A-E (see Table 9 above), together with all of the predicates mentioned in Grimshaw (1979), including in the Appendix, even though Grimshaw (1979) herself only tests the full

range of complementation possibilities for a limited selection of these.¹⁷ ¹⁸ These are occasionally supplemented by additional predicates to provide corroboration for a particular pattern. For instance, the ‘exclamatory’ predicates of Elliott (1971) were also taken into consideration, as the distribution of exclaimatives has generally been neglected in the discussion in the literature, in comparison to declaratives and interrogatives. The result is not an exhaustive overview of the CP-selecting predicates of English, but it gives a wide pool of frequently-occurring members of this class (for which attested examples are more frequent and intuitions are clearest), with 98 predicates taken into consideration in total. Crucially, it takes into account all those predicates which have formed the basis of the existing orthodox view that FCCs are selected on the basis of their clause-type, so the difference in the results obtained cannot be attributed to the range of predicates tested.

Each of these predicates was tested for its ability to embed each of the six types of FCC. This was assessed on the basis of attested examples (drawn from the British National Corpus and, where necessary, a Google search), and native speaker intuitions, discussed further below (see also Oosterhof (2006: chapter 5) and references therein for discussion of intuition-based approaches to linguistic research).¹⁹ I make use of corpus data in order to establish whether a particular predicate-complement combination is acceptable or unacceptable, not to provide a statistical analysis of the relative frequency of occurrence of such combinations. Given the sometimes complex interaction of properties of both predicate and complement clause which have an influence upon the acceptability of any particular combination, such a comparison would be difficult to conduct. For instance, to establish the number of cases of *that*-clause complements to *know* attested in the BNC would not only involve taking into account all the possible person and tense/aspect forms of *know*, but also ensuring that all the ‘know + *that*’ cases involve complementiser *that*, rather than demonstrative *that* (cf. *I didn’t know that!*). For resolute complements to *know*, the situation would be even more complex, given the range of *wh*-expressions capable of introducing this kind of FCC. The goal of the current study is simply to establish which kinds of complement are in principle possible as the complement to a particular predicate and which are not. As it is, in relation to this goal my results are still the most detailed given to date, and already depart from previous studies of the distribution of FCCs e.g. Grimshaw (1979), Ginzburg & Sag (2000) in the use of attested examples to corroborate native speaker intuitions. Without taking into account all possible CP-complement-taking matrix predicates, no statistical information on the relative number of members of each predicate

¹⁷ Only those predicates such as *surprised at* and *appalled by* in which the FCC is the complement of a preposition are excluded, as my focus in this work is on FCCs which are the direct complement of verbal/adjectival predicates.

¹⁸ Like Grimshaw (1979: 314 f.n. 29), whilst recognising that ‘[s]election for complement types [...] extends to subjects’, I do not make a principled distinction between subject and object complements in my study.

¹⁹ The British National Corpus is 100 million word corpus of spoken and written British English material dating from the 1980s-1993 and covering a range of genres, which can be accessed via <http://corpus.byu.edu/bnc/>.

class can be given. Yet even on the basis of the 98 predicates considered here, some noticeable trends start to emerge, such as the fact that Class 1 has only four members, whilst Class 2 has 34, for instance.

In the initial stage, a search of the British National Corpus was conducted for the strings ‘predicate + *that*’ ‘predicate + *why*’ and ‘predicate + *what a*’. In each case, the past simple form of the predicate was used, unless disfavoured for the predicate in question (e.g. *it’s true*). Similarly, the positive form of the predicate was tested, with the exception of those predicates which only exist in FCC-taking form when negated e.g. *(not) count* and *(not) matter*. The aim was to establish the acceptability of *that*-clause complements, interrogative complements and exclamative complements, by testing the complementiser *that*, and the *wh*-expressions *why* and *what a* specific to each of these respectively. Note that the only type of FCC for which any conclusions could be drawn at this stage was exclamatives, because the *wh*-expression *what a* can occur in this kind of FCC alone. Given the surface similarity of factive and non-factive *that*-clause complements, and of true interrogative and resolutive complements, the acceptability of a *that*-clause or a *why*-clause under a given predicate is not sufficient to determine precisely which kind of FCC it is which is accepted. Whilst the absence of attested instances of a *that*-clause or a *why*-clause under a particular predicate may suggest that both factive and non-factive *that*-clauses, or both true interrogatives and resolutes are ungrammatical, this requires corroboration from native speaker judgements to be sure that it is not simply a reflex of the low frequency of the string in the corpus. Determining whether a *that*-clause in a particular context is factive or non-factive, or a *why*-clause is a true interrogative or a resolutive is done ‘manually’. In the former case, the patterns of logical implication are checked to see if the propositional content of the *that*-clause is logically implied and, if so, whether this logical implication holds under negation.²⁰ In the latter case, the tests used are syntactic rather than semantic: can the *wh*-expression be an aggressively non-D-linked expression such as *what the hell*?²¹ Is SAI (marginally) possible in the interrogative clause, or altogether ungrammatical?²²

²⁰ There are some complications with this, as the discussion of the semi-factive predicates in section 5.3.2.4.4a makes clear. In cases where the matrix predicate is negative in form, with no corresponding unstressed affirmative equivalent (as is the case for *(don’t) care/give a damn*, discussed in section 5.3.2.4.7) the factivity can instead be assessed by testing whether or not denial of the propositional content of the clause gives rise to pragmatic infelicity.

²¹ Whilst this could in principle be checked in the corpus, such expressions are too infrequent for its absence under a particular predicate to be interpreted as evidence that the interrogative clause in question is a resolutive.

²² Recall that I have not yet committed myself to a position on whether the source of the distinction between factive and non-factive *that*-clauses or resolutes and true interrogatives is to be attributed to the complement clause or to the matrix predicate itself, or to a combination of the two, although I turn to this issue in Chapter 6. An accurate empirical description must be the precursor to an understanding of the source of this behaviour. The patterns presented in Table 11 documenting the distribution of complement clauses with a distinct syntactic/interpretive ‘fingerprint’ hold regardless of the source of the interpretation and syntactic behaviour.

There are several complicating factors. If a particular complementation pattern is not attested with a predicate which scarcely occurs in the corpus, it cannot be concluded that the type of complement in question is in general excluded with the predicate in question, particularly if this involves a kind of complement clause which is itself relatively rare in the corpus (a *what a*-clause, for instance). The absence of the predicate + complement combination may thus simply be a reflex of the low rate of occurrence of the predicate and of the complement type in question. Therefore native speaker intuitions were used to determine which of the cases non-attested in the corpus were grammatical, and which ungrammatical. Other complications involve the fact, noted in Chapter 4, section 4.4.1.3, and in footnote 1 of the present chapter, that complementation possibilities are not always determined by the predicate alone. In certain cases, other properties of the matrix clause can also have an influence. For instance, the string '*believe what a*' is attested, but closer inspection reveals that this is only in the particular context '*can't believe what a*'. Without the preceding (negated) modal, exclaimatives cannot be embedded under *believe*, just as Grimshaw (1979: 319) observes. Pending a detailed investigation of such properties, I treat *can't believe* as a distinct predicate from *believe*, with its own complementation possibilities. Similar attention needs to be paid to nuances in complement clauses. *Why*-clauses are used to test the distribution of interrogatives for the reason that no other *wh*-complements can be introduced by *why*. There are however certain contexts where *why*-clauses are excluded, and yet other (resolutive) interrogative clause complements are permitted, namely the particular sub-class of the emotive factives which constitute class 4b, discussed in section 5.3.2.4.4b below, so whilst the presence of a *why*-clause complement is a good indication that (one type of) interrogative FCC complement is possible, the absence from the corpus of examples showing the occurrence of *why*-clause complements under a particular predicate cannot be taken as conclusive evidence that interrogative complements are altogether excluded from such contexts. Again, such native speaker intuitions were used to confirm whether or not such cases were grammatical.

Nothing yet has been said about how the distribution of CHCs is determined. Searching for CHCs in a corpus is not straightforward, given that they show surface similarities to interrogatives, exclaimatives and free relative complements too. Thus whilst a search for the string 'predicate + *how*' may reveal which predicates do not permit any of these *wh*-complements, in the case where hits are returned for the string it is then for the linguist to judge which type of FCC complement they qualify as. Whilst in some cases there are indications which favour a particular interpretation - if the complement clause contains a stative verb, or non-emphatic negation, the chances are high that it is a CHC, for instance (see Legate (2010: 122 f.n.3) - in others it relies on the judgement of the most plausible interpretation given the context. It is possible to search for strings such as 'predicate *how he isn't*' which build in such characteristics. These strings are so specific, however, that even cases which are judged grammatical by native speakers and which return hits on a Google search are not attested in a corpus. The judgement of acceptability of CHCs as

complements to the predicates in question additionally draws on an informal corpus of attested examples from printed sources, primarily newspapers, which Liliane Haegeman collected and I expanded upon, but relies also on native speaker intuitions. In the first case these are my own judgements, but core patterns have been corroborated by informal questionnaire investigation with other native speakers.

In general, native speaker intuitions have played a significant role in the collection of the data presented here. Because of the surface similarities between the complements whose distribution is being investigated here, results obtained from a corpus require the interpretation of a linguist. The linguist in question is myself, and so the judgements represent in the first instance my own idiolect of English. However, these should be largely replicable if tested for other speakers of English and, I hypothesise, potentially for other languages too (section 4.2 for a sample of the other languages which permit CHCs, and Broekhuis & Nye (2013) for a preliminary investigation of Dutch FCCs), although this requires corroboration. Note that if it turns out to be the case that particular (groups of) speakers permit, under a specific predicate, a certain kind of FCC complement which I exclude, or exclude an FCC which I permit, this is not damaging to my findings. It is perfectly possible, and indeed, perhaps even to be expected, that speakers will differ in this way. Thus the fact that the predicate *resent* for some speakers only permits resolute, exclamatives and CHC complements, qualifying as a member of class 6, whereas for other speakers it additionally allows factive *that*-clauses, thus falling into class 4b (as it is categorised in Table 11), is unproblematic. However, the strong prediction that my account makes is that there will be limitations to this variation. The overall trends which emerge from the data presented in Table 11, and which are discussed in section 5.3.3 are expected to hold for all speakers. Thus were a native English speaker to allow exclamative as well as true interrogative complements to be embedded under *ask*, this would significantly alter the empirical picture, as it runs contra to the empirical generalisation which emerges such that no predicate accepts both exclamatives and true interrogatives, and that exclamatives always pattern alike with resolutives and CHCs.

5.3.2.2 Presentation of the results

Having presented and evaluated in some detail the methodology used to obtain the results, in this section I focus on the patterns which emerge in these as presented in Table 11. The columns of the table specify the six kinds of FCC under consideration, whilst the rows indicate the CP-selecting predicates tested. The ability of a specific FCC to occur with a particular predicate, determined on the basis of the process outlined in section 5.3.2.1, is indicated in the cells of the column, with ‘y’ indicating that a particular kind of FCC is grammatical in the context in question, ‘n’ that it is not. In certain cases where there is a complication to this basic pattern, this is indicated by ‘?’. The nature of the complication is

discussed in detail below in the sub-section of section 5.3.2.3 corresponding to the predicate class in question.

The six classes into which predicates are grouped are determined solely on the basis of the range of FCCs which they permit, without reference to any existing classificatory systems or, indeed, to any properties of the predicates in question beside the kind of finite clausal complements which they permit.²³ Some of the classes which emerge correspond at least approximately to established categorisations of predicates which are familiar from the literature, for instance the factives of class 4. Even here there is a complication, however, with a sub-set of the emotive factives showing distinct distributional behaviour, and thus constituting a separate class (class 3). Other classes contain predicates which have not previously been recognised as a class, and/or have received little attention in their own right in terms of the kinds of complement clauses which they allow, such as those of class 6.

There is no significance either to the ordering of the classes within the table, or to that of the predicates within each class. Class 1 in the first row comprises predicates which accept true interrogative complements and true interrogative complements alone. A predicate which rather takes only non-factive *that*-clauses qualifies as a member of Class 2, whilst a predicate which permits only factive *that*-clause complements is a member of Class 3. Whilst these first three classes all involve predicates which permit exactly one type of FCC complement, there are also predicates which permit multiple types of complement. These fall into Classes 4-6. Class 6 is comprised of predicates which permit resolutive, exclamatives and CHCs, whilst Classes 4 and 5 additionally allow *that*-clause complements - factive *that*-clauses in the case of Class 4, non-factive *that*-clauses in the case of class 5. The absence from Table 11 of any of the other 57 logically possible classes (e.g. of a class of predicates which permit exclamatives alone, or of a class of predicates which permit CHC and true interrogatives) is because there are no predicates which realise these complementation possibilities.²⁴ All of the predicates tested show one of the six patterns of

²³ The availability of non-finite complements and (certain types of) DP complements was not taken into consideration, unlike in Kiparsky & Kiparsky's (1971) study, discussed in 5.3.1.2 above. Correlations between the availability of such complements and the range/nature of the FCC complements a predicate permits are a topic for future investigation.

²⁴ The total of 63 mathematically possible combinations is calculated as follows:

- Predicates permitting a single type of FCC: 6 combinations $[(6! / (1! \times (6-1)!)) = 6]$
- Predicates permitting two types of FCC: 15 combinations $[(6! / (2! \times (6-2)!)) = 15]$
- Predicates permitting three types of FCC: 20 combinations $[(6! / (3! \times (6-3)!)) = 20]$
- Predicates permitting four types of FCC: 15 combinations $[(6! / (4! \times (6-4)!)) = 15]$
- Predicates permitting five types of FCC: 6 combinations $[(6! / (5! \times (6-5)!)) = 6]$
- Predicates permitting all six types of FCC: 1 combination $[(6! / (6! \times (6-6)!)) = 1]$

Total number of possible combinations = 63

Thanks to Philip Nye for his mathematical assistance.

behaviour with regard to the range of FCC complements possible which characterise the classes presented in Table 11. The significance of this is discussed in sections 5.3.3 and 5.4 below.

Having clarified the presentation of the results in Table 11, and explained how they were obtained, in sub-sections 5.3.2.3.1-5.3.2.3.6 I now discuss each of the six predicate classes which emerge in turn, paying most attention to those which are less widely discussed, or where there is a complicating factor. In section 5.3.2.3.7 I discuss a handful of apparent exceptions. In section 5.3.3 I then turn to discuss the broad trends in the distribution of FCC which emerge across these classes. The most striking and significant of these, which was already noted in sections 5.2 above and which is shown to hold across an even more extended range of environments, is the common distribution of resolutive, exclamatives and CHCs. Given the shortcomings of approaches which consider clause-type as the determining factor in the distribution of FCCs in accounting for this pattern, I argue in section 5.4 for an alternative characterisation of the properties of FCCs which are relevant to their distribution.

5.3.2.2.1 Class 1: Interrogative predicates (ask, wonder)

Table 12 - Summary of the complementation possibilities for Class 1 predicates

	predicate classes	non-factive <i>that</i>- clause	factive <i>that</i>- clause	CH C	exclam.	res.	interrog .
1	interrogative predicates: <i>wonder; ask; inquire, want to know</i>	n	n	n	n	n	y

The class of interrogative predicates, named on the basis of the FCCs they permit, is a small class. Of the 98 CP-selecting predicates taken into consideration in my study, just 4 show this pattern of behaviour. The most frequently discussed members are *ask* and *wonder*, although Ohlander (1986) adds *want to know*, and McCloskey (2006) provides examples which illustrate that the interrogative complements to *inquire* are likewise true interrogatives.²⁵ ²⁶ Despite the fact that the number of predicates which permit only

²⁵ In languages such as French, where *se demander* ‘wonder’ is the reflexive variant of *demander* ‘ask’.

²⁶ *Want to know* appears to admit *that*-clause complements (cf. i) as well as the interrogative complements which Grimshaw (1979: 306-308) discusses in relation to this predicate (cf. ii). The *want to know* of (i) is not the same as that of (ii), however. In (ii), *want to know* could be paraphrased as ‘I want you to tell me/to be told/shown etc.’ whereas in (i) it rather means something more like ‘want to be sure/certain’.

interrogative complements is very small, the class has received considerable attention in the literature. Whilst previous accounts of the distribution of FCCs differ considerably, both from each other and from the present account, a common feature is the identification of a class of predicates which take only interrogative complements, with *ask* and *wonder* as its core members (Grimshaw 1979, Munsat 1986, Ginzburg & Sag 2000). I therefore take Class 1 to be familiar and uncontroversial. (27) and (28) provide attested examples of interrogative FCCs embedded under Class 1 predicates, and illustrate the impossibility of other FCC complements occurring. There are only four examples in each case, despite the six type of FCC, because of the surface similarity of the two types of *that*-clause complement and of the two types of interrogative complement. As *that*-clause complements are excluded altogether under Class 1 predicates (cf. (27a, 28a)), the question of whether they are factive or non-factive does not arise. That the interrogative complements to Class 1 predicates are true interrogatives rather than resolutive is confirmed by the acceptability of aggressively non-D-linked *wh*-expressions, attested examples of which are provided in (29). Exclamatives are ungrammatical under Class 1 predicates, as the (c) examples show, and whilst *how*-clauses can occur (27d, 28d), these cannot have the interpretation of CHCs.

- (27) a. * Mr Kaufman asked [that there was no independent process of appeal under the screening procedures].
 b. Mr Kaufman asked [why there was no independent process of appeal under the screening procedures].²⁷
 c. * Mr Kaufman asked [what a long wait there was for the process of appeal under the screening procedures].
 d. # Mr Kaufman asked [how there was no independent process of appeal under the screening procedures].
- (28) a. * I wondered [that she was going on about Mr Bishop and Madge just now].
 b. I wondered [why she was going on about Mr Bishop and Madge just now].²⁸
 c. * I wondered [what a lot she was going on about Mr Bishop and Madge just now].
 d. # I wondered [how she was going on about Mr Bishop and Madge just now].
- (29) a. McGann attempted to press him as to his whereabouts in the last few days, to which Oscar asked [why the hell it mattered].²⁹

(i) In any event the purchaser will want to know [that he is buying the right assets from the right companies].

From the BNC. *The acquisition of business assets*. Myers, Jonathan. Harlow: Longman Group UK Ltd, 1993.

(ii) I want to know [where you got the drugs, who from, and who you took them with].

From the BNC. *The ladykiller*. Cole, Martina. London: Headline Book Pub. plc, 1993.

²⁷ From the BNC. [Guardian, elect. edn. of 19891213].

²⁸ From the BNC. *The Lock*. Gates, Susan. Oxford: OUP, 1990.

²⁹ From the BNC. *Imajica*. Barker, C. Glasgow: HarperCollins, 1992.

b. At times like that I could not care a toss for JTR and wondered [why the hell I was in such a situation].³⁰

The number of predicates which are able to embed resolutes is much greater than the number of predicates which can embed interrogatives, as can be seen at a glance from Table 11: the predicates of classes 4-6 are all capable of embedding resolutes. Note, however, that whilst those predicates which embed interrogatives are able to embed only this type of FCC, there are no predicates which embed only resolutes.^{31 32} Predicates which embed resolutes always also embed exclamatives and CHCs, as preliminarily noted in section 5.2 above, and discussed at greater length in 5.3.3.1 below, and sometimes also additionally embed factive or non-factive *that*-clause complements (classes 4 and 5). Whilst further research into the nature of matrix predicates themselves is needed before this fact can be explained, the significance for the current work, which focusses on characterising the distribution of finite complement clauses, is that true interrogatives, unlike resolutes, show their own unique distributional pattern.

5.3.2.2.2 Class 2: Non-factive predicates (believe, suppose, think)

Table 13 - Summary of the complementation possibilities for Class 2 predicates

	predicate classes	non-factive <i>that</i> - clause	factive <i>that</i> - clause	CH C	exclam.	res.	interrog .
2	non-factives: <i>believe; claim; think,</i> <i>have an/no inkling,</i> <i>assert, deny, doubt,</i> <i>seems, happens,</i> <i>appears, true,</i> <i>irrelevant, doubtful,</i> <i>likely, apparent,</i>	y	n	n	n	n	n

³⁰ From the BNC. *Highland journey: a sketching tour of Scotland : retracing the footsteps of Victorian artist John T. Reid*. Hedderwick, Mairi. Edinburgh: Canongate Press plc, 1992.

³¹ *Ask* can in fact take *that*-clause complements, but only those which are in the subjunctive mood (cf. (i) vs. (ii)). Subjunctive clauses are not discussed by Grimshaw (1979), and are similarly beyond the scope of my current research. As noted in footnote 2 of this chapter, whilst *wonder* does not permit any *that*-clause complements at all, the idiom *it's a wonder* nevertheless does (cf. iii).

- (i) He asked [that he be excused from jury duty]. [ask + subjunctive *that*-clause]
- (ii) * He asked [that he is/was excused from jury duty]. [ask + indicative *that*-clause]
- (iii) It's a wonder [that he gets any work done with that racket in the background].

³² There are a handful of exceptional predicates which appear to embed (non-factive) *that*-clauses and resolutes only. These are discussed in section 5.3.2.3.7 below.

<i>certain, exclaim. vow,</i> <i>suppose, expect, guess,</i> <i>imagine³³,</i> <i>(im)possible, (un)likely,</i> <i>hope, find,</i> <i>(im)probable, sure³⁴,</i> <i>inform, expect,</i> <i>propose, presuppose,</i> <i>conclude, agree</i>							
---	--	--	--	--	--	--	--

The members of Class 2 have in common with the members of Class 1 the fact that they permit only a single kind of FCC: non-factive *that*-clauses, in the case of Class 2. However, Class 2 differs from Class 1 in that its members are much more numerous - 34 of the 98 predicates taken into consideration in my study fall into this class. There is no clear unifying factor for the predicates of this class other than their common acceptance of only non-factive *that*-clause complements: the class comprises predicates such as *inform*, *expect* and *conclude* amongst its members, in addition to many of the members of Hooper & Thompson's (1973) non-factive classes (see Table 9 above): *assert* and *claim* from Class A, *believe* and *think* from Class B, and *(un)likely* and *deny* from Class C, for instance. The examples in (30), (32), (34) and (36) provide attested examples of *that*-clause complements with a member of Class 2 of each of these types (a), and shows the ungrammaticality of interrogatives (b), exclamatives (c) and CHCs (d). As interrogative complements are excluded altogether, the question of whether these are true interrogatives or resolutives does not arise. That the *that*-clause complements are non-factive is illustrated in (31), (33), (35), (37): the propositional content of the *that*-clause (a) is not logically implied in either the positive or negative versions (b) of the sentences based on the attested examples.

- (30) a. The Committee concluded [that a commitment of extra resources was needed] if significant further progress was to be made.³⁵
b. * The Committee concluded [why a commitment of extra resources was needed].
c. * The Committee concluded [what a commitment of extra resources was needed].
d. * The Committee concluded [how a commitment of extra resources was needed].

- (31) a. The Committee concluded [that a commitment of extra resources was needed].
 \nRightarrow a commitment of extra resources was needed.

³³ In the sense of 'believe/expect/think'. On the alternative meaning of 'use your imagination' *imagine* allows non-factive *that*-clauses, resolutives, exclamatives and CHCs and thus qualifies as a class 5 predicate.

³⁴ 'Not sure' takes resolutives as well as *that*-clauses. See discussion in 5.3.4.2.7.

³⁵ From the BNC. *The legal context of teaching*. Johnstone, Susan; Pearce, Penelope; Harris, Neville. Harlow: Longman Group UK Ltd, 1992.

- b. The Committee didn't conclude [that a commitment of extra resources was needed].
 ⇒ a commitment of extra resources was needed.
- (32) a. Warnock claimed [that both Andy Reece and Geoff Twentyman should have been sent off].³⁶
 b. * Warnock claimed [why both Andy Reece and Geoff Twentyman should have been sent off].
 c. * Warnock claimed [what a foul it had been].
 d. * Warnock claimed [how both Andy Reece and Geoff Twentyman should have been sent off].
- (33) a. Warnock claimed [that both Andy Reece and Geoff Twentyman should have been sent off].
 ⇒ both Andy Reece and Geoff Twentyman should have been sent off
 b. Warnock didn't claim [that both Andy Reece and Geoff Twentyman should have been sent off].
 ⇒ both Andy Reece and Geoff Twentyman should have been sent off
- (34) a. Mrs Thatcher also believed [that the publicly owned industries were inefficient and an obstacle to the creation of a more dynamic and adaptive economy].³⁷
 b. * Mrs Thatcher also believed [why the publicly owned industries were inefficient].
 c. * Mrs Thatcher also believed [what an inefficient system it was].
 d. * Mrs Thatcher also believed [how the publicly owned industries were inefficient and an obstacle to the creation of a more dynamic and adaptive economy].
- (35) a. Mrs Thatcher believed [that the publicly owned industries were inefficient].
 ⇒ the publicly owned industries were inefficient
 b. Mrs Thatcher didn't believe [that the publicly owned industries were inefficient].
 ⇒ the publicly owned industries were inefficient
- (36) a. Of the twenty original members it is likely [that only two (Sir Keith Joseph and Airey Neave) voted for her on the first ballot for the leadership election in 1975].³⁸
 b. * Of the twenty original members it is likely [who voted for her].
 c. * Of the twenty original members it is likely [what a small minority voted for her].
 d. * Of the twenty original members it is likely [how only two (Sir Keith Joseph and Airey Neave) voted for her on the first ballot for the leadership election in 1975].

³⁶ From the BNC. *The Daily Mirror*.

³⁷ From the BNC. *Thatcherism and British politics*. Kavanagh, Dennis. Oxford: OUP, 1990.

³⁸ From the BNC. *Thatcherism and British politics*. Kavanagh, Dennis. Oxford: OUP, 1990.

- (37) a. It is likely [that only two voted for her on the first ballot].
 \nRightarrow only two voted for her on the first ballot
 b. It isn't likely [that only two voted for her on the first ballot].
 \nRightarrow only two voted for her on the first ballot

The extent of the overlap between the non-factive predicates which Hooper & Thompson identify (albeit if they sub-divide these into three classes) and my Class 3 is striking, given that they are drawn up on the basis of different criteria: Hooper & Thompson's (1973) account relies on the behaviour of *that*-clause complements alone, whilst my own is based on the range of FCC complements which a predicate allows. The number of predicates which permit only factive *that*-clause complements and no other kind of FCC is small (see discussion of Class 3 in section 5.2.2.2.3), in comparison both to the number of predicates which permit only non-factive *that*-clause complements, and to the number of predicates which permit *wh*-clause complements in addition to factive *that*-clause complements. This points to a broad but imperfect correlation between the (non-)factivity of the *that*-clause complements a predicate permits, and the (in)ability of this predicate to embed *wh*-clause complements.

Certain accounts have implemented systems for the selection of FCCs on the basis that factive *that*-clauses and resolutes (Munsat 1986) or factive *that*-clauses and exclamatives (Ginzburg & Sag 2000: 127-129) have a common distribution, but the results presented in Table 11 show that the empirical patterns are more nuanced than that. Firstly, as just noted, not all predicates which permit factive *that*-clause complements also allow factive *wh*-complements (resolutes, exclamatives, or CHCs). Conversely, there are certain predicates which allow non-factive *that*-clause complements, and which nevertheless permit resolutes, exclamatives, and CHCs. These form Class 5 in my system. Whilst the majority of Hooper & Thompson's (1973) Class A predicates fall into my Class 2, predicates such as *say* and *report* rather qualify as members of my own Class 5. Thus whilst there does appear to be a broad tendency for predicates which permit non-factive *that*-clause complements not to allow *wh*-clause complements and, conversely, for predicates which permit factive *that*-clause complements to allow *wh*-clause complements, this is an imperfect correlation. Any system implemented to capture the distributional patterns of FCCs must also leave scope for capturing the additional, albeit apparently less frequently occurring, patterns noted above.

5.3.2.2.3 Class 3: Emotive factives (i) (be happy, be glad, be surprised)

Table 14 - Summary of the complementation possibilities for Class 3 predicates

	predicate classes	non-factive <i>that</i> - clause	factive <i>that</i> - clause	CH C	exclam.	res	interrog.
3	emotive factives (i) <i>afraid</i> ³⁹ , <i>surprised</i> , <i>too</i> <i>bad</i> , <i>flabbergasted</i> , <i>sorry</i> , <i>unbelievable</i> , <i>terrible</i> , <i>incredible</i> , <i>fascinating</i> , <i>happy</i> , <i>glad</i> , <i>puzzled</i> , <i>concede</i> , <i>sufficient</i> , <i>make sense</i> , <i>(not)</i> <i>count</i>	n	y	n	n	n	n

The third and final class of predicates which permit only a single kind of FCC complement is Class 3. Class 3 contains those predicates which permit only factive *that*-clause complements. With just 16 of the 98 predicates under consideration belonging to this class, this pattern of behaviour is relatively infrequent. This alone cannot explain the lack of attention which such predicates have received in the literature, however. Class 1 contains just 4 members and yet these are much more widely discussed, and frequently recognised as forming a class. The fact that little attention has been paid to the existence of a class of predicates accepting only factive *that*-clause complements is perhaps rather to be attributed to the fact that those accounts which distinguish between factive and non-factive *that*-clause complements do not focus on the distribution of *wh*-clause complements, and vice versa.

³⁹ In the sense discussed by Grimshaw (1979: 306 f.n. 24), *afraid* occurs only in the first person present tense and conveys something along the lines of ‘I’m sorry (to have to inform you)...’ (i). The propositional content of the *that*-clause appears to be presupposed. Where *afraid* means *be frightened*, the *that*-clause is rather non-factive. Again, no other kinds of clausal complement are permitted (ii).

- (i) I’m afraid that dogs aren’t permitted. \Rightarrow dogs aren’t permitted
- (ii) I’m afraid that the dog will attack the cat. \nRightarrow the dog will attack the cat

Those accounts which do discuss the distribution of a broader range of FCCs tend to make use of the same, limited range of predicates, where those most frequently taken to be representative of factive predicates (*know*, *realise*, *discover*...) are those which do allow *wh*-clause complements. I cited the Class 3 predicates *sorry/happy/glad* when evaluating Ginzburg & Sag's (2000: 127-129) account in section 5.2.2.2 above as test cases which show that under certain predicates, the distribution of factive *that*-clauses and exclamatives does in fact diverge, contrary to what their account predicts. Class 3 predicates were also mentioned in passing in section 5.3.2.2.2 above, again as a counter-example to the claim that factive *that*-clauses and factive *wh*-clauses necessarily have a common distribution.

The predicates in Class 3 are a subset of the predicates which qualify as members of Hooper & Thompson's (1973) Class D. Hooper & Thompson (1973) characterise this class as sharing the common interpretive property of 'express[ing] some emotion or subjective attitude about a presupposed complement' (Hooper & Thompson 1973: 479). As Kiparsky & Kiparsky (1971) make clear, however, there are also non-factive predicates which are emotive. For this reason, Class D predicates have been labelled the 'emotive factives'. Yet this is not sufficient to characterise the predicates of my Class 3, given that, as already noted, other Class D predicates fall into my Class 4b, discussed below in 5.3.2.2.4b, and which permit resolutives, exclamatives and CHCs as well as factive *that*-clause complements. Nor is being an emotive factive a necessary condition for membership of Class 3. Grimshaw (1979: 323) singles out from Kiparsky & Kiparsky's (1971) class of factive predicates four predicates (*concede*, *sufficient*, *make sense*, (*not*) *count*) for the reason that they permit factive *that*-clause complements but not exclamatives. None of these are emotive.⁴⁰ As was the case for Class 2, there is no obvious property held in common by these predicates beyond their common FCC-requirements. (38) and (40) are attested examples of predicates, emotive and non-emotive respectively, which only permit factive *that*-clause complements. That the *that*-clause complements to these predicates are factive is evidenced in (39) and (41), where it is shown that the propositional content of the *that*-clause is logically implied, and that this logical implication holds under negation.

⁴⁰ Although *concede* is discussed as a factive predicate by Grimshaw (1979: 323), in certain regards it appears to behave more like a semi-factive (see discussion in 5.3.3.2.4 below). When the matrix predicate is in a positive affirmative context, the propositional content of the *that*-clause complement is logically implied (ia). However, when the matrix predicate is negated there is at least one reading of the complement in which the propositional content is not logically implicated - (ib) suggests that there is a chance that Rodrigo de Triano is not yet lost. Unlike the semi-factives of class 4a, however, *concede* does not permit *wh*-clause complements.

(i) a. I have conceded [that we have lost Rodrigo de Triano]. \Rightarrow we have lost Rodrigo de Triano
 b. I haven't conceded [that we have lost Rodrigo de Triano] yet. \nRightarrow we have lost Rodrigo de Triano
 (ib) is from the BNC. *The Daily Mirror*.

- (38) a. I am sorry [that it is so rarely seen in Germany today].⁴¹
 b. * I am sorry [what is so rarely seen in Germany today].
 c. * I am sorry [what a rare sight it is in Germany today].
 d. * I am sorry [that it is so rarely seen in Germany today].
- (39) a. I am sorry [that it is so rarely seen in Germany today].
 ⇒ it is so rarely seen in Germany today
 b. I am not sorry [that it is so rarely seen in Germany today].
 ⇒ it is so rarely seen in Germany today
- (40) a. It makes sense [that we're born liking these tastes].⁴²
 b. * It makes sense [why we like these tastes].
 c. * It makes sense [what a narrow range of tastes we like].
 d. * It makes sense [how we're born liking these tastes].
- (41) a. It makes sense [that so much emphasis is put on floor area].
 ⇒ so much emphasis is put on floor area
 b. It doesn't make sense [that so much emphasis is put on floor area].⁴³
 ⇒ so much emphasis is put on floor area

5.3.2.2.4 Class 4: Factives (realise/forget/be interesting)

As a class, the factive predicates have received more attention than many of the other predicates under discussion here, albeit primarily with regard to the behaviour of their *that*-clause complements. It was in relation to *that*-clause complements that the term 'factive' was first introduced by Kiparsky & Kiparsky (1971: 345), in order to characterise the presupposition 'that the complement of the sentence expresses a true proposition'. As was noted in section 5.3.2.2.3 above, however, factive predicates which embed only *that*-clause complements - the Class 3 predicates of my account - are in fact in the minority. The majority of factive predicates also permit *wh*-clause complements - 33 of the 49 factive *that*-clause embedding predicates considered in this study, to be precise. This means that Class 4 contains a third of the total number of predicates under consideration here.

I divide class 4 into two sub-classes on the basis of slight complications they display in relation to the same basic complementation pattern of accepting factive *that*-clauses, resolutes, exclamatives and CHCs. This concerns idiosyncrasies of Class 4a in relation to their *that*-clause complements on the one hand, and the behaviour of Class 4b in relation to

⁴¹ From the BNC. *What's brewing*. St Albans: CAMRA, 1991

⁴² From the BNC. *She*. London: The National Magazine Company Ltd, 1989.

⁴³ From the BNC. 28 convs rec. by 'Arthur2' (PS50T) between 27 Feb and 2 Mar 1992.

resolutive complements on the other. It is this aspect of the behaviour of Class 4a predicates which has earned them their label as the semi-factives, which is discussed further in 5.3.2.2.4a below. It turns out that these differences in relation to FCC complements split the class of predicates broadly along the independently proposed cognitive/emotive divide: Class 4a contains 22 cognitive factive predicates, which ‘assert the manner in which the subject came to know that the complement proposition is true’ (Hooper & Thompson 1979: 480).⁴⁴ Class 4b contains those emotive factives which do not fall into Class 3: 11 of the predicates under consideration here. Claiming that the factive predicates all show the same complementation possibilities is not uncontroversial. That (factive) *wh*-clause complements are possible as well as (factive) *that*-clauses is widely recognised and accepted for the cognitive factives, yet disputed for the emotive factives, perhaps influenced by the fact that some of the emotive factive predicates - those of Class 3 - do permit only factive *that*-clause complements. Yet what emerges from the discussion of the behaviour of the factive predicates across Classes 3, 4a and 4b is rather a split between a sub-set of the emotive factives on the one hand, permitting factive *that*-clauses only, and the rest of the factives, both cognitive and emotive on the other, permitting factive *wh*-clauses as well as factive *that*-clauses.

5.3.2.2.4a Class 4a: Cognitive factives (semi-factives) (realise, find out, forget)

Table 15 - Summary of the complementation possibilities for Class 4a predicates

⁴⁴ Even if this does not appear to be an altogether accurate description of all the members of the class - neither *remember* nor *forget* is to do with the manner in which ‘the manner in which the subject came to know that the complement proposition is true’ (Hooper & Thompson 1973: 480). They nevertheless intuitively seem to belong with the cognitive factives, because of their relation to the acquisition or loss of ‘knowledge’. The relation to ‘knowledge’ seems to be common to the cognitive factives, distinguishing them from the emotive factives, which rather contribute an ‘evaluation’.

	Predicate classes	non-factive <i>that</i> - clause	factive <i>that</i> - clause	CH C	exclam.	res.	interrog .
4a	cognitive factives (semi-factives) <i>know, find out, realize, discover, learn, hear, remember, admit, divulge, disclose, reveal, figure out, see, hear, recognize, forget, explain, keep in mind, make clear⁴⁵, guess, predict, anticipate⁴⁶</i>	?n	y	y	y	y	n

As noted above, in terms of their complementation possibilities the predicates in Class 4a are most obviously distinguished from those of Class 3 by the fact that they permit resolutes, exclamatives and CHCs, in addition to factive *that*-clause complements (cf. (42), and (43) for an indication from the exclusion of aggressively non-D-linked *wh*-expressions that the interrogative complements are resolutes rather than true interrogatives).

- (42) a. Rosslyn realised [that the horse was asking for help].⁴⁷
b. Then I realised [why comics earn more money than singers].⁴⁸

⁴⁵ In my judgement, CHCs are not very felicitous with *make clear*, although examples are attested, including in the BNC (cf. i).

- (i) Despite the fact that Dement performed experiments after this one in which his subjects showed none of the psychiatric symptoms with REM sleep deprivation, and that he himself made clear [how his early observations were probably misleading about the effects of REM sleep deprivation], the idea that dreaming preserved sanity had been strongly reinforced.

From the BNC. *Sleep and dreaming*. Empson, Jacob. London: Faber & Faber Ltd, 1989.

⁴⁶ *Guess, predict* and *anticipate* are classified as members of Class 4 on the reading in which they mean ‘guess/predict/anticipate correctly’ (cf. i). On the alternative reading of these predicates, where they rather mean ‘make a guess/prediction’ (see Egré (2008: 22–24) for discussion) and ‘have an expectation (that may or may not be met)’ respectively, they permit non-factive rather than factive *that*-clause complements, and resolutes, but do not appear to allow exclamatives or CHCs, and thus rather belong with the exceptional cases discussed below in 5.3.2.4.7. Page numbers for Egré refer to the pre-publication manuscript version available to download from http://jeannicod.ccsd.cnrs.fr/ij_n_00226386/fr/. Last accessed 17.09.2013.

- (i) a. I correctly guessed/predicted/anticipated [that there were a hundred marbles in the jar].
b. I correctly guessed/predicted/anticipated [how many marbles there were in the jar].
c. I correctly guessed/predicted/anticipated [what a lot of marbles there were in the jar].
d. I correctly guessed/predicted/anticipated [how there were a hundred marbles in the jar].

⁴⁷ From the BNC. *Understanding horses*. Langley, Garda. Newton Abbot, Devon: David & Charles Pubs plc, 1989.

⁴⁸ From the BNC. *A coward's chronicles*. Caine, Marti. London: Century Hutchinson, 1990.

- c. While watching the Olympic boxing, I realised [what a sensible idea it is for the amateur fighters to wear headguards to protect them from brain injuries].⁴⁹
- d. She had not realised [how she would never stop needing him but now she could see the future and it was dark].⁵⁰

(43) * Then I realised [why the hell comics earn more money than singers].

Yet this is not the only difference between the two classes of predicates. There appears to be an additional, more subtle distinction when it comes to their factive *that*-clause complements. Karttunen (1971) observes that the factivity of Class 4a predicates can be lost in certain environments, namely when the predicate is negated, questioned or occurs in the protasis of a conditional. Two important qualifications are required however. Firstly, as Karttunen (1971: 62-65) himself notes, predicates differ with regard to the range of contexts in which their factivity is maintained and in which it is lost.

The examples in (44) show that when the matrix predicate is in an affirmative declarative context, whether affirmative, the propositional content of the *that*-clause complement to the predicates *realise*, *discover* and *forget* is logically implied. When the matrix predicate is negated (cf. 45) or questioned, however, the behaviour of these predicates diverges (cf. 46). Whilst the logical implication still holds in the case of the *that*-clause complement to *forget* (cf. 45c, 46c), it does not in the case of *realise* (cf. 45a, 46b) or *discover* (cf. 45b, 46b).

(44) a. John realised [that she had not told the truth].

⇒ she had not told the truth

b. John discovered [that she had not told the truth].

⇒ she had not told the truth

c. John forgot [that she had not told the truth].

⇒ she had not told the truth

(45) a. John didn't realise [that she had not told the truth].

≠ she had not told the truth

b. John didn't discover [that she had not told the truth].

≠ she had not told the truth

c. John didn't forget [that she had not told the truth].

⇒ she had not told the truth

⁴⁹ From the BNC. *The Daily Mirror*. London: Mirror Group Newspapers, 1992.

⁵⁰ From the BNC. *Dark sunlight*. Wilson, Patricia. Richmond, Surrey: Mills & Boon, 1993.

- (46) a. Did John realise [that she had not told the truth]?
 \nRightarrow she had not told the truth
 b. Did John discover [that she had not told the truth]?
 \nRightarrow she had not told the truth
 c. Did John forget [that she had not told the truth]?
 \Rightarrow she had not told the truth

In the protasis of a conditional, there is clearly no logical implication for the *that*-clause complements to *realise* (47a) and *discover* (47b), although the logical implication of the *that*-clause complement to *forget* remains (47c). Unlike the other factives then, *forget* in fact appears to show the behaviour of a ‘true’ factive like emotive *regret*, the behaviour of which in the four contexts discussed is presented in (48). Nevertheless, *forget* still differs from *regret* as contexts can nevertheless be constructed in which the factivity of the *that*-clause complement to the former is lost, which is not the case for the latter, as the contrast between (49a) and (49b) illustrates. The continuation in (49a) is felicitous, because there is no logical implication of the content of the *that*-clause. (49b), on the other hand, is pragmatically odd because of the clash between the logical implication that it is his birthday, and the overt assertion to the contrary.

- (47) a. If I realise later [that I have not told the truth], I will confess it to everyone.
 \nRightarrow I have not told the truth
 b. If I discover later [that I have not told the truth], I will confess it to everyone.
 \nRightarrow I have not told the truth
 c. If I forget later [that I have not told the truth], I won’t be able to confess it.
 \Rightarrow I have not told the truth

- (48) a. John regretted [that she had not told the truth].
 \Rightarrow she had not told the truth
 b. John didn’t regret [that she had not told the truth].
 \Rightarrow she had not told the truth
 c. Did John regret [that she had not told the truth]?
 \Rightarrow she had not told the truth
 d. If I regret later [that I have not told the truth], I will confess it to everyone.
 \Rightarrow I have not told the truth

- (49) a. If I had forgotten [that it was his birthday], it would have been different, but it’s not until next month. \nRightarrow it was his birthday
 b. # If I had regretted [that it was his birthday], it would have been different, but it’s not until next month. \Rightarrow it was his birthday

The second point to note is that this ‘semi-factive’ behaviour affects only *that*-clause complements to such predicates. The *wh*-clause complements to the same predicates (44)-(47) maintain their factivity even in the environments where this does not (consistently)

hold for their *that*-clause complements, as illustrated for resolute complements in (50), exclamatives in (51) and CHCs in (52), based on the attested examples given in (42) above.

- (50) a. John realised [why comics earn more money than singers].
 ⇒ comics earn more money than singers
 b. John didn't realise [why comics earn more money than singers].
 ⇒ comics earn more money than singers
 c. Did you realise [why comics earn more money than singers]?
 ⇒ comics earn more money than singers
 d. If I realise later [why comics earn more money than singers], I will explain it to everyone.
 ⇒ comics earn more money than singers
- (51) a. John realised [what a sensible idea it is for the amateur fighters to wear headguards].
 ⇒ it is a sensible idea it is for the amateur fighters to wear headguards
 b. John didn't realise [what a sensible idea it is for the amateur fighters to wear headguards].
 ⇒ it is a sensible idea it is for the amateur fighters to wear headguards
 c. Did you realise [what a sensible idea it is for the amateur fighters to wear headguards]?
 ⇒ it is a sensible idea it is for the amateur fighters to wear headguards
 d. If I realise later [what a sensible idea it is for the amateur fighters to wear headguards, I will explain it to everyone].
 ⇒ it is a sensible idea it is for the amateur fighters to wear headguards
- (52) a. John realised [how she would never stop needing him].
 ⇒ she would never stop needing him
 b. John didn't realise [how she would never stop needing him].
 ⇒ she would never stop needing him
 c. Did you realise [how she would never stop needing him]?
 ⇒ she would never stop needing him
 d. If he realises [how she will never stop needing him], he won't be happy.
 ⇒ she will never stop needing him

A full account of all these patterns goes well beyond the scope of this work. Other factors than those discussed above, such as tense and the person of the subject, also seem to play a part in whether the *that*-clause complement is factive or non-factive (see Beaver 2010 for data and discussion). The crucial issue for present concerns is what these facts tell us about the distribution of FCCs. Contexts such as (44)-(47) might appear to suggest that the cognitive factives permit non-factive as well as factive *that*-clause complements. There are nevertheless reasons to doubt that non-factive *that*-clauses should be considered as an additional type of complement permitted by these predicates in addition to factive *that*-clause complements, on a par with resolutives, exclamatives or CHCs. The first reason is that in the default case it is factive and not non-factive *that*-clause complements which are

permitted. When the predicate occurs in a declarative matrix clause, and even when this is negated, at least for the predicates under consideration, the *that*-clause complement is factive. Non-factive *that*-clauses occur under Class 4a predicates only in a specific range of contexts.

The second reason not to treat the possibility of non-factive *that*-clauses occurring as the complement to Class 4a on a par with the other complement types permitted is the fact that these occur in a range of contexts which is almost entirely distinct from those in which factive *that*-clause complements can occur. This distinguishes them from the *wh*-clause complements permitted under Class 4a predicates which, like factive *that*-clause complements, can occur in the basic positive and negative declarative cases, as illustrated in (50a,b), (51a,b) and (52a,b) above. It is this environment which I primarily make use of in assessing the complementation possibilities of predicates. This is for the reason that altering properties of the matrix clauses in which a predicate can occur influence its complementation possibilities. This was already discussed in section 4.4.1.3, in relation to *believe*, with example (67) from this earlier discussion repeated here as (53).

- (53) a. * I believe [what an idiot I've been].
 b. I can't believe [what an idiot I've been].
 c. You wouldn't believe [what an idiot I've been].

I thus take *realise*, *discover* and *forget* to permit factive *that*-clause complements as well as resolutives, exclamatives and CHCs. I argue that in those contexts where the *that*-clause complement to these predicates rather receives a non-factive interpretation, this is not a case of the factivity of a *that*-clause being 'lost' as such, or of the complementation possibilities of a predicate altering. The complementation possibilities of the cognitive factives, like any other predicates, are stable. However, combining an interrogative or conditional operator with such a predicate can create a new (complex) 'predicate' with its own selectional requirements. Factive *that*-clauses occur under *realise*, *discover* and *forget*, non-factive *that*-clauses occur under *did you discover?* and *if I had forgotten*, for instance. Thus factive and non-factive complements do not occur under the same range of predicates.⁵¹ Both the predicates which allow factive complements and those which allow non-factive complements additionally permit resolutives, exclamatives and CHCs. Therefore whilst *realise*, *discover* and *forget* show the same complementation pattern as the emotive factives

⁵¹ This holds generally, but there are certain exceptions. Note that *if I had forgotten* is a context in which factive as well as non-factive *that*-clauses can occur (cf. i). *Forget* seems to be the 'most factive' of the semi-factive predicates i.e. it permits non-factive *that*-clauses in a particularly narrow range of environments. This ties in with the data in (46) and (47) which show that, generally speaking, the range of environments in which non-factive rather than factive *that*-clause complements occur varies for each of the cognitive factives.

(i) If I had forgotten [that it was his birthday], it would have been really awkward.

of Class 4b, *did you discover?* and *if I had forgotten* in fact display the same pattern as the Class 5 predicates, discussed in section 5.3.2.4.4b below. This is of course a purely descriptive characterisation of the behaviour observed, for which an explanation is still required. A comprehensive inventory of the properties which influence the complementation possibilities of a predicate, and an understanding of how precisely these alter the complementation behaviour of a predicate is required in future research. However, the fact that the availability of *that*-clause complements can be linked to such factors justifies my decision to follow Hooper & Thompson (1973) who note the particularities of the cognitive factives when it comes to their *that*-clause complements, but nevertheless classify them as one of their ‘factive’ classes of predicates. Thus in Table 11 I specify the cognitive factives as taking factive but not non-factive *that*-clause complements, albeit qualified by the ‘?’ symbol for the reasons just elaborated.

5.3.2.2.4b Class 4b: Emotive factives (ii) (be odd/strange/interesting)

Table 16 - Summary of the complementation possibilities for Class 4b predicates

	predicate classes	non-factive <i>that</i>- clause	factive <i>that</i>- clause	CH C	exclam.	res.	interrog.
4b	emotive factives (ii) <i>can't believe, amazing, surprising, resent, regret, odd, strange, interesting, funny, can't believe, bother</i>	n	y	y	y	?y	n

In contrast to Class 4a, the predicates of Class 4b consistently allow factive but not non-factive *that*-clause complements, even in those contexts where the *that*-clause complements to cognitive factives were shown to ‘lose’ their factivity, as was illustrated in (48) and (49) above for *regret*. This they hold in common with the emotive factives which constitute Class 3. The two classes of emotive factives are distinguished, however, by the additional ability of Class 4b predicates to embed (factive) *wh*-complements (cf. 54). The possibility for exclamatives to occur under such predicates has long been observed (cf. 55), with Grimshaw (1979: 281) providing examples such as (55b) to illustrate this. Given the lack of attention which has been paid to (the distribution of) CHCs in the literature, it is unsurprising that the fact that they can similarly occur under such predicates has until now gone unremarked. What has been debated in the literature is the ability of interrogative complements - resolutives specifically - to be embedded under these emotive factives. For instance, Grimshaw (1979: 282) discusses *amazing* as an example of a predicate which

embeds only exclamatives.⁵² Ginzburg & Sag (2000: 75) claim that ‘for many speakers, emotive predicates are incompatible with interrogatives’.

- (54) a. It's amazing [who you see in old shows].⁵³
 b. It's amazing [how many people go to the address bar and type in a generic name instead of going to Google].⁵⁴
 c. It's amazing [how everyone appears when there's food about]!⁵⁵
- (55) a. It is amazing [what a difference these simple techniques can make].⁵⁶
 b. It's amazing [what a fool he is]. [Grimshaw (1979: 281), ex.(4a)]

I keep the discussion of the availability of resolutive under emotive factive predicates brief, as the issue was already discussed in section 3.2.3.4 in relation to the misidentification of certain resolutive complements as embedded exclamatives. To recap, the idea that Class 4b predicates embed exclamative but not resolutive complements rests on misinterpretations of two pieces of empirical data. The first involve cases such as (56), which Grimshaw (1979: 282 f.n.3) treats as involving embedded exclamative complements on a par with the examples in (55). As Grimshaw (1979: 282 f.n.3) herself notes, however, if this is the case then it raises the puzzle as to why embedded exclamatives, but not root exclamatives, can be introduced by the *wh*-expressions *where*, *what* and *when*. Interrogatives, on the other hand, can freely be introduced by these *wh*-expressions. On the basis of this and other facts, Huddleston (1993) makes a convincing case for these being resolutive rather than exclamatives. This I discuss in more detail in section 3.2.3.4.3, along with additional arguments to the same effect provided by Lahiri (2002: 34-36), including the ability for clauses involving multiple *wh*-expressions – a characteristic of the two interrogative types of FCC but not of other *wh*-clause complements – to occur as the complement to such predicates (cf. 57). Thus we have convincing positive evidence that the emotive factives of Class 4b do accept resolutive complements.

- (56) a. It's amazing [who John saw]. [Grimshaw (1979: 282 f.n.3), ex.(ia)]
 b. It's amazing [what John saw]. [Grimshaw (1979: 282 f.n.3), ex.(ia)]
- (57) a. ? It is amazing [who does what].⁵⁷ [Lahiri (2002: 35), ex. (107e)]
 b. It is amazing [which men love which women]. [Lahiri (2002: 35), ex. (107f)]

⁵² As the patterns in Table 11 above make clear, there are in fact no predicates which embed only exclamatives.

⁵³ From <http://forums.bigfinish.com/threads/693-It-s-amazing-who-you-see-in-old-shows>. Last accessed 06.07.2013.

⁵⁴ From *The Observer*, 16.03.2008, p. 14 col. 1.

⁵⁵ From the BNC. [Several editions of Link -- the house journal of the Pauls group].

⁵⁶ From the BNC. *Living magically: a new vision of reality*. Edwards, Gill. London: Judy Piatkus (Pubs) Ltd, 1991.

⁵⁷ As noted when this examples is first discussed in section 3.2.3.4.3, the judgement here is that given by Lahiri (2002: 35). I find the example perfectly felicitous.

The case made to counter this relies, conversely, on the exclusion of certain expressions considered typical of interrogatives from complement clauses embedded under these predicates. The most commonly-cited of these is the impossibility of *whether*-clauses (58). This is also the least serious objection which could be made, and is already countered by Lahiri (2002: 36). He points out that although *whether*-clauses and embedded *wh*-questions generally appear to distribute alike, there are a limited number of predicates which accept one of these kinds of interrogative complement clause but not the other. This point was already made by Huddleston (1994: 417-418), with reference to examples such as (8) and (9).⁵⁸ These make clear that the exclusion of a *whether*-clause complement cannot be taken as evidence that the predicate in question is unable to embed *wh*-interrogative complement clauses more generally. I argue that this is precisely the situation for the emotive predicates of Class 4b. Whilst they cannot embed *whether*-clause complements, this is no reflection on their ability to embed *wh*-resolutives.⁵⁹

(58) * It is amazing [whether John went to the party]. [Lahiri (2002: 36), ex. (107a)]

(59) a. She realized [why he was angry]. [Huddleston (1994: 418), ex. (16a)]
 b. * She realized [whether he was angry]. [Huddleston (1994: 418), ex. (16b)]

(60) a. * I doubt [where she is]. [Huddleston (1994: 418), ex. (11c)]
 b. I doubt [whether you are ready]. [Huddleston (1994: 418), ex. (11a)]

What potentially seems more of a challenge to the idea that the emotive factives embed resolutives, is that *whether*-clauses are not the only interrogative complement clauses which are excluded from occurring under the predicates of Class 4b. As (61) and (62) illustrate, resolutives introduced by *how* or by *why* are similarly excluded, as discussed above in section 5.2.1.3.⁶⁰ This is intriguing, firstly given that no such distinction between *how*- and *why*- resolutives on the one hand, and *what*-/*where*-/*when*-resolutives on the other was

⁵⁸ Huddleston (1994: 418) in fact makes a distinction between ‘polar questions’ such as the *whether*-clauses in (59b) and (60b) and ‘alternative questions’ (*whether...or not*). Whilst both are excluded under *realise*, *doubt* permits *whether*-clauses only of the former type. As made clear from the outset, *whether*-clauses are not considered in the present work. There is much debate about the characterisation and distribution of *whether*-clauses (and *if*-clauses) which would take us too far from my current concerns.

⁵⁹ This is acknowledged by Ginzburg & Sag (2000: 75 f.n. 27), who note that whilst ‘There is little controversy that emotives resist polar interrogatives’, some speakers accept resolute *wh*-complements such as (i) and (ii).

(i) Jo really regretted which student was picked for the job. [Ginzburg & Sag (2000: 75 f.n. 27), ex. (i)]

(ii) Bo resented/was surprised who ate what at the cheese fair. [Ginzburg & Sag (2000: 75 f.n. 27), ex. (ii)]

⁶⁰ These cases are not to be confused with examples such as (i) where the complement clause is right-dislocated. The two cases are distinguished in terms of their prosody - the *wh*-clause in (i) is separated from the predicate by an intonational break.

(i) It’s amazing, how he made the cake.

observed under any of the other predicate classes, and secondly because even under the emotive factives of Class 4b, *wh*-clauses introduced by *how* are permitted when these are of a clause-type other than resolute, as attested by acceptability of the CHC in (54c), and (63).

(61) * It's amazing [how he made the cake].

(62) * It's amazing [why he made the cake].

(63) It's amazing [how he struggled with even the simplest of tasks].

The crucial point to note for the present purposes of determining the patterns of complementation of various predicates, however is that there are resolute complements - those introduced by *who*, *what*, *where* or *when* - which are felicitous under the emotive factives of Class 4b, even if the ungrammaticality of resolutives introduced by *whether*, *how* and *why* sometimes masks the basic availability of resolutives. Why these predicates are selective as to which resolutives they permit remains to be explained. As was discussed at length in section 2.5.4, the number of clause-types that we identify depends to some extent on how far we 'zoom in' to the details which distinguish them, as opposed to taking a broader perspective which focusses on their major commonalities. Perhaps when we look at the members of the class of resolutives more closely, we will find that, for instance, *why*-clauses differ from *where*-clauses in crucial regards which explain this distributional difference.⁶¹ This is a topic for future research. The important point for present concerns is that they do not constitute an exception to the emerging trend of a common distribution for resolutives, exclamatives and CHCs.

As a final point, it appears that not only are there distinctions between resolutives, but furthermore, the Class 4b predicates themselves may in fact form a cline when it comes to the acceptance of resolute complements. Cases such as *amazing* do permit resolutives, as illustrated in (54) and (57) above, albeit not with the full range of *wh*-expressions which can introduce these in other contexts. With *bother*, resolutives - even those introduced by *what*, *where* or *when* - seem much more degraded in extraposed position (cf. 64), although in subject position they are acceptable (cf. 65).⁶² However, it is to be noted that there are two predicates - near-synonyms of each other - which genuinely seem to reject resolute

⁶¹ Rizzi (1990, 2001) and Shlonsky & Soare (2011) already identify ways in which the syntactic behaviour of *why*-clauses differs from that of other *wh*-clauses.

⁶² *It doesn't bother me* does allow resolute complements (cf. i) as well as factive *that*-clauses, but not CHCs or exclamatives.

(i) It doesn't bother me who I play with and that speaks volumes for the squad.

From <https://www.facebook.com/My.Football.World.HD/posts/332200003560840>. Last accessed 08.07.2013.

complements, whilst permitting factive *that*-clauses, exclamatives and CHCs. These are *it's a pity* and *it's a shame* (cf. 66).⁶³ Of the predicates tested, these are the only ones which seem to altogether exclude resolutes, whilst permitting exclamatives, CHCs and factive *that*-clauses, and thus belong to the small number of exceptions to the generalisation that resolutes, exclamatives and CHCs consistently pattern alike, other cases of which are discussed in 5.3.4.2.7 below. To conclude then, the vast majority of emotive factives of Class 4b do embed resolutes. Thus, modulo the complications noted regarding resolute complements to Class 4b predicates, and the factivity of *that*-clause complements to Class 4a predicates, they permit the same range of FCC complements.

(64) ?* It bothers me [where he lives].

(65) [Where he lives] bothers me.

- (66) a. It's a pity [that someone didn't take some aspects of his education in hand], to tame his more bizarre flights of fancy.⁶⁴
 b. * It's a pity [where he's ended up].
 c. It's a pity [how much we take for granted], both as adults and as New Yorkers.⁶⁵
 d. It's a pity [how people run from the ones who make them happy and fight for the ones who make them cry].⁶⁶

5.3.2.2.5 Class 5 (tell, report, communicate)

Table 17 - Summary of the complementation possibilities for Class 5 predicates

	Predicate classes	non-factive <i>that</i> -clause	factive <i>that</i> -clause	CH C	exclam.	res.	interrog .
5	<i>tell, say, report, teach, announce, communicate, obvious, clear</i>	y	?n	y	y	y	n

Like the Class 4 predicates, Class 5 predicates permit resolutes, exclamatives, CHCs and *that*-clause complements, as illustrated in (67).⁶⁷ The difference is that whereas the *that*-

⁶³ For certain speakers who deem *that*-clause complements to *resent* ungrammatical, this predicate also differs from the other emotive factives in the range of complements that it permits. For such speakers *resent* still qualifies as a member of Class 6.

⁶⁴ From the BNC. [*Scotsman*]. Leisure material.

⁶⁵ From <https://twitter.com/JorgeO/status/310560799661912064>. Last accessed 06.07.3013.

⁶⁶ From <https://twitter.com/CauseWeAreGirIs/status/284784670305038337>. Last accessed 06.07.3013.

⁶⁷ In contrast to their positive counterparts, *not clear* and *not obvious* allow non-factive *that*-clauses and resolutes only, a pattern of behaviour discussed in section 5.4.2.4.7 below.

clause complements to the former class are factive, the *that*-clause complements to the latter class are non-factive (cf. 68). This makes Class 5 predicates somewhat exceptional, in that their complements are not consistently non-factive or factive (Munsat 1986, Abels 2010): their *that*-clause complements are non-factive, whilst their *wh*-clause complements are factive, as Abels' (2010: 142) example (69) makes clear. Thus as Ginzburg & Sag (2000: 65 f.n. 10) note, '[t]he class of predicates that behave 'factively' with interrogatives is somewhat wider than the class of factive-declarative-subcategorizing predicates'.

- (67) a. The head told me [that Mrs Singh had been coming to school regularly to express concern about Balbinder's lack of progress].⁶⁸
 b. The acid test was when I told him why [I never had any money to spend], but he was very understanding.⁶⁹
 c. The following morning he told me [what a wonderful night's sleep it had given him] and was fulsome in his praise of what he called his 'beautiful lady'.⁷⁰
 d. Peter told her [how he had hovered on the margin of death for nearly six months].⁷¹
- (68) a. John told me [that I was stupid]. \nRightarrow I was stupid.
 b. John didn't tell me [that I was stupid]. \nRightarrow I was stupid.
- (69) a. The New York Times reported [that Iraq had tried to buy uranium from Niger].
 (The report later turned out to be false.) [Abels (2010: 142) ex. (3a)]
 b. The New York Times reported [where weapons of mass destruction had been hidden in Iraq]. (#The report later turned out to be false.) [Abels (2010: 142) ex. (3b)]
- (70) You didn't tell me [that your cousin was dead],' Luke said without preamble, his voice very quiet. Merrill's head jerked up, and she dropped her notebook, a rush of blood surging into her face. His blunt observation had pulled the ground from beneath her feet.' Didn't I?' she mumbled, bending, her fingers scrabbling blindly over the fluttering pages.⁷²

There is in fact some debate as to whether in certain contexts the *that*-clause complements to Class 5 predicates are not in fact factive (see Munsat (1986: 205).⁷³ In (70) for instance,

⁶⁸ From the BNC. *Policies for diversity in education*. ed. Swann, W; Potts, P.. London: Routledge & Kegan Paul plc, 1992.

⁶⁹ From the BNC. *Clothes Show*. London: Redwood Pub., 1991.

⁷⁰ From the BNC. *Undertaken with love*. Spottiswoode, Jane. London: Robert Hale Ltd, 1991.

⁷¹ From the BNC. *Castle of desire*. Heywood, Sally. Richmond, Surrey: Mills & Boon, 1991.

⁷² From the BNC. *A warning of magic*. Kingston, Kate. Richmond, Surrey: Mills & Boon, 1993

⁷³ This differs from the case of the semi-factives, discussed in 5.3.2.4.a in that for the Class 5 predicates the question of the (non-)factivity of the *that*-clause complements arises already in basic declarative contexts.

the context which follows makes clear that the cousin is indeed dead. However, De Cuba & Ürögdi (2009a,b) provide convincing evidence from English and Hungarian for their view that whilst the *that*-clause complements to predicates such as *tell* can sometimes be factive-like, when the predicate is in the past tense or is stressed for instance, this is not true factivity. In Chapter 6, I will argue that in this regard, Class 5 predicates provide crucial evidence against the view that it is the matrix predicate which is responsible for the factivity or non-factivity of a complement clause – here we have a case where different FCCs show different behaviour in relation to factivity under what is usually treated as a single predicate. Another distinction between Class 5 and Class 4 is that there are a much smaller number of predicates in the former class than in the latter – only 8 of the 98 predicates under consideration here fall into Class 5. Furthermore, whilst the factives (and various sub-groups thereof) have already been considered as a ‘class’ of predicates in the literature, this is not the case for Class 5. In Hooper & Thompson’s (1973: 472-474) system of categorisation for instance (see Table 9 above), *say* and *report* belong to Class A, along with predicates such as *assert* and *claim*, which are categorised in my Class 2.

5.3.2.2.6 Class 6 (describe, detail, discuss)

Table 18 - Summary of the complementation possibilities for Class 6 predicates

	predicate classes	non-factive <i>that</i>- clause	factive <i>that</i>- clause	CH C	exclam.	res.	interrog .
6	<i>describe; detail; discuss</i>	n	n	y	y	y	n

Class 6 is similarly a small class of predicates which have not received much attention in the literature to date: the three members of the class given here – *describe*, *detail*, *discuss* – are not even mentioned in the accounts of Hooper & Thompson (1973) and Grimshaw (1979).⁷⁴ Like the predicates in Classes 4 and 5, members of Class 6 permit resolutive, exclamatives and CHCs. In contrast to predicates belonging to the former classes, *that*-clause predicates are not permitted at all, as is illustrated in (71), echoing the patterns

⁷⁴ Ginzburg (1995b) does take into consideration *discuss*, but classes it amongst the ‘question interrogative’ (QI) predicates, together with *ask* and *wonder*. Whilst this decision is semantically-motivated within his system, it is clear that in terms of the system which I draw up here, based on the kinds of FCCs which a predicate permits, *discuss* shows quite different behaviour to *ask* and *wonder*. Not only are the interrogative complements which *discuss* embeds of a different type to those which *ask* and *wonder* embed, in addition, the former but not the latter additionally permits exclamatives and CHCs.

presented in (89) in the course of the discussion in section 5.2.2.2 above.⁷⁵ Whilst the existence of Class 1 - predicates which permit only true interrogative complements - is well-known and documented, the existence of a class of predicates which similarly allow only *wh*-complements, but of all varieties other than true interrogatives, has not previously been noted, or at least not in these terms. Similarly, because the discussion in the literature of factivity in relation to FCCs has largely focussed on *that*-clauses, the existence of ‘factive’ predicates which embed all factive clauses except factive *that*-clauses has not received attention. As such, Class 6 predicates provide the counterpoint to Class 3, which similarly allow factive complements, but permit only factive *that*-clause complements, and not *wh*-factives (exclamatives, resolutes and CHCs). Nevertheless, Class 3 and Class 6 hold in common the fact that both contain a relatively small number of predicates which are exceptions to the general (but imperfect) correlation between a predicate allowing factive *that*-clause complements, and permitting (factive) *wh*-clause complement, which is assumed to hold by Munsat (1986) and Ginzburg & Sag (2000). As will become clear in the discussion in section 5.4, such cases are crucially revealing when it comes to the relevant factors determining the distribution of FCCs.

- (71) a. *One document details [that a telegram could not be sent to the Japanese royal family to thank them for their message of congratulations as Britain was still technically at war with Japan]. Another describes [that three of Philip’s surviving sisters had to be struck off the guest list as they were married to German aristocrats].
- b. In Chapter 14 we described [why private individuals may be risk-averse].⁷⁶
- c. Later on facebook I saw one of her posts that described [what a great day she was having relaxing and watching tv enjoying fun shows].⁷⁷
- d. One document details [how a telegram could not be sent to the Japanese royal family to thank them for their message of congratulations as Britain was still technically at war with Japan]. Another describes [how three of Philip’s surviving sisters had to be struck off the guest list as they were married to German aristocrats].⁷⁸

5.3.2.2.7 Additional predicates

To conclude, I discuss several predicates whose behaviour seems to differ from that of the predicates in the six classes identified above. The first are a handful of predicates which

⁷⁵ See footnote 10 above for discussion of speakers who, unlike myself, apparently permit *that*-clause complements to *describe*. Depending on whether these *that*-clause are factive or non-factive, *describe* for such speakers would rather be a member of Class 4 or Class 5.

⁷⁶ From the BNC. *Economics*. Begg, David; Fischer, Stanley; Dornbusch, Rudiger. Maidenhead: McGraw-Hill Book Company, 1991.

⁷⁷ From. <http://www.aunlp.org/samplework/nlp/exam6.html>. Last accessed 06.07.2013.

⁷⁸ From *The Observer* 18.11.07 page x col 2-3.

permit non-factive *that*-clause complements and resolutes, but not the exclamatives and CHCs which in all the contexts seen to date have otherwise patterned alike with resolutes: *not sure*, *not certain*, *not clear*, *not obvious* and *(not) matter* (cf. 72). The majority of these are the negative forms of predicates which otherwise show regular behaviour: *sure* and *certain* fall into Class 2, whilst *clear* and *obvious* are members of Class 5. *(Not) matter* is exceptional in that it seems to lack a corresponding non-negative, non-emphatic declarative form (cf. 73). It is largely for the lack of 'independent' predicates showing this behaviour that at this stage I do not draw up a predicate class whose members select only non-factive *that*-clauses and resolutes, especially given the otherwise robust generalisation as to the common distribution of resolutes, exclamatives and CHCs. The only potential contender is *decide* (cf. 76), along with *guess* and *predict*, on the 'make a guess/prediction' reading, (cf. 77) which was mentioned in footnote 46 above.⁷⁹

- (72) a. I am not sure [that militant was a word in common parlance at that time].⁸⁰
 b. I am not sure [why the idea of an old woman in an unlit room reading out newspaper headlines for her grandson tickles me so, but it does].⁸¹
 c. * I am not sure [what an amusing image it is].
 d. * I am not sure [how militant was a word in common parlance at that time].⁸²
- (73) a. It doesn't matter [that some ideas fail to meet orthodox criteria].⁸³
 b. It DOES matter [that some ideas fail to meet orthodox criteria].
 c. Does it matter [that some ideas fail to meet orthodox criteria]?
 d. ?? It matters [that some ideas fail to meet orthodox criteria].
- (74) a. The House of Lords decided [that the lorry driver, as Romford's employee, owed his employer a duty to drive with reasonable care and skill].⁸⁴
 b. Buoyant Ferguson has decided [who will chase the goals but would not reveal his hand yesterday].
 c. * Ferguson has decided [what a strong squad there will be].
 d. * The House of Lords decided [how the lorry driver owed his employer a duty to drive with reasonable care and skill].
- (75) a. I guessed/predicted [that there were a hundred marbles in the jar, but I was wrong].

⁷⁹ *Anticipate*, which patterns like *guess* and *predict* on its factive reading, behaves differently on its non-factive reading where it means 'have an expectation (that may or may not be met)'. There it appears not to permit any *wh*-clause complements, admitting only non-factive *that*-clause complements, and thus patterning like Class 2 predicates.

⁸⁰ From the BNC. [Hansard extracts 1991–1992].

⁸¹ From the BNC. *Creative writing. A practical guide*. Casterton, Julia. Basingstoke: Macmillan Pubs Ltd, 1992.

⁸² From the BNC. [Hansard extracts 1991–1992].

⁸³ From the BNC. *The elements of earth mysteries*. Heselton, Philip. Shaftesbury, Dorset: Element Books Ltd, 1991.

⁸⁴ From the BNC. *Law for the haulier*. Brown, Largent. London: Kogan Page Ltd, 1987.

- b. I guessed/predicted [how many marbles there were in the jar, but I was wrong].
- c. * I guessed/predicted [what a lot of marbles there were in the jar, but I was wrong].
- d. * I guessed/predicted [how there were a hundred marbles in the jar, but I was wrong].

The predicates *don't care* and *don't give a damn*, like *matter*, do not appear to exist in unemphatic positive form (cf. 76). As with (*not*) *matter*, whilst resolute complements are perfectly acceptable, exclamatives and CHCs are highly degraded if not outright ungrammatical (cf. 77). The difference between the two predicate types is that the *that*-clause complements to *don't care* and *don't give a damn* are factive rather than non-factive (cf. 78).

- (76) a. I don't care/mind [that some ideas fail to meet orthodox criteria].
- b. I DO care/mind [that some ideas fail to meet orthodox criteria].
- c. Does he care/mind [that some ideas fail to meet orthodox criteria]?
- d. ?? I care/mind [that some ideas fail to meet orthodox criteria].
- (77) a. You don't care [that she's not in love with you] because you're not the least bit in love with her, either!⁸⁵
- b. I don't care [who runs the country], as long as he doesn't wake me before noon.⁸⁶
- c. * I don't care [what a beautiful woman she is].
- d. * You don't care [how she's not in love with you] because you're not the least bit in love with her, either!
- (78) a. We still don't give a damn [that X died last Sunday].⁸⁷
- b. # We still don't give a damn [that X died last Sunday], although actually he didn't.

Given that the number of predicates which show this 'exceptional' behaviour is greater than the number of predicates listed as members of certain of the predicate classes in Table 11 (Class 1 and Class 6 for instance), the question arises as to whether it is justified to treat these separately as exceptions, rather than establishing additional predicate classes for predicates which permit only non-factive *that*-clauses and resolutives, and only factive *that*-clauses and resolutives as FCC complements. I do not take this approach in the current work because of the particular character of the majority of predicates which show this behaviour, many of which are negative forms of predicates which otherwise fall neatly into one of the established predicate classes. As noted at several point in this work already, the influence of factors such as negation, modals and tense/aspect on the complementation possibilities

⁸⁵ From the BNC. *Battle for love*. Howard, Stephanie. Richmond, Surrey: Mills & Boon, 1991.

⁸⁶ From the BNC. *New Statesman and Society*.

⁸⁷ From the BNC. *Leonard Cohen: prophet of the heart*. Dorman, Lorraine S and Rawlins, Clive L. London: Omnibus Press, 1990.

of a predicate is at present poorly understood and requires investigation in future work. Even if the outcome of such investigation should reveal that there are good grounds for positing these as separate predicates classes, an important empirical generalisation nevertheless remains intact: the common distribution of exclamatives and CHCs remains intact. The absence of a single context in which the distribution of these two distinct clause-types diverges is in itself striking.

5.3.2.2.8 Predicate classes: conclusions

To conclude, in the course of the discussion in section 5.2.3.4, six classes of predicates were drawn up on the basis of the range of FCC complements permitted by the 98 CP-selecting matrix predicates under discussion here. Whilst acknowledging that this is just one of many systems which have been proposed for the categorisation of FCC-embedding predicates (see the discussion of existing accounts in section 5.3.1 above), the merits of this particular system will become clear when the patterns which emerge for the distribution of FCC complements are discussed in the following section, section 5.3.3. The behaviour of each of these classes was discussed in turn. It was observed that whilst certain of these correspond closely to classes already proposed in the literature on independent grounds (Class 4a and the cognitive factives/semi-factives, for instance), the members of others have received little attention as individual predicates, much less as a class (as is the case for Class 6). As was noted at the outset, the goal here was to offer a novel descriptive characterisation of the facts, taking into account the finer-grained distinctions between FCCs drawn in this work. Characterising predicate classes on the basis of the range of FCCs they are capable of embedding is of course not explanatory as to why a particular predicate embeds precisely the range of complements that it does, or why some complementation patterns seem much more common than others (i.e. some classes have considerably more members than others), or why certain combinations of FCC complements are attested whilst others are not. In order to achieve this, a detailed investigation of the properties of matrix predicates is required, to complement the study of FCCs offered here. This remains a goal for future research. What concerns me in this work is offering a detailed picture of the empirical facts of FCC distribution. In the following section I discuss the results of my investigation in terms of the distribution of the six types of FCC under consideration, cross-cutting the predicate classes presented in the current section, with a particular focus on the combinations of FCCs which predicates select and, equally crucially, those combinations which are never attested.

5.3.3 Patterns in the distribution of FCCs

The discussion in 5.3.2.4 motivates the existence of the predicate classes presented in Table 11. It is striking that of the 63 combinations of complements which it would theoretically be possible for a predicate to embed, just six of these are realised. A partial explanation for

this limited number of patterns is provided when we look at the patterns which emerge for the distribution of the various types of FCC across the predicate classes identified above. There are some striking regularities, such as the common distribution of resolutive, exclamatives and CHCs. The fact that these three FCCs distribute alike reduces greatly the potential number of complementation patterns, and thus predicate classes, that we might expect to find. In section 5.3.3.1 I discuss this common distribution of resolutive, exclamatives and CHCs. In 5.3.3.2 I turn my attention to other patterns in the distribution of FCCs which emerge from the data, cross-cutting the predicate classes identified.

5.3.3.1 The common distribution of resolutive, exclamatives and CHCs

The single most striking trend which emerges from the data presented in Table 11 is the common distribution of three FCCs: resolutive, exclamatives and CHCs, which holds across all of the 6 predicate classes identified. Predicates consistently accept (Classes 4-6) or consistently reject (Classes 1-3) resolutive, exclamatives and CHCs as complements. Thus whilst there are predicates which permit only true interrogative complements (Class 1), only non-factive *that*-clause complements (Class 2) or only factive *that*-clause complements (Class 3), there is no class of predicates which permits only resolutive complements, only exclamative complements or only CHCs. Neither are there predicates which permit any pairing of these FCCs to the exclusion of a third. Apparent counter-examples to this common trend - predicates such as *amazing* which have been claimed to permit exclamative but not resolutive complements for instance - were shown to fit the pattern, once subtle distinctions between FCCs are taken into account. The cases discussed in 5.3.2.4.7 appear to be genuine exceptions to this generalisation, permitting *that*-clauses and resolutive alone, although in all of these cases the common distribution of exclamatives and CHCs is nevertheless maintained. As these exceptions were shown to almost exclusively involve predicates which are atypical in necessarily involving negation, however, I do not consider them further here. Thus we arrive at a situation where we see the common distribution of three FCCs which, on the basis of the distinct combination of syntactic and interpretive properties which they display, were motivated as independent clause-types in Chapters 2 and 3. Against the backdrop of previous literature, where clause-type is broadly accepted to determine the distribution of FCCs, these facts are particularly intriguing. The consequences are explored below in section 5.4. First, however, I turn my attention to additional trends in the distribution of FCCs.

5.3.3.2 Other trends in the distribution of FCCs

Whilst the common distribution of resolutive, exclamatives and CHCs is so striking as to emerge clearly from Table 11, the distributional similarities shown between other kinds of FCCs are not so immediately apparent. For this reason, I provide Table 19 to give an overview of the number of contexts in which any two FCCs distribute alike. The number in

each cell indicates for how many of the predicate classes (out of the six identified in total) the two types of FCC in question show the same behaviour (i.e. in how many cases they are both permitted or both excluded).⁸⁸ The figures are not intended to have any statistical significance, but simply to give an indication of the distributional trends. Note that if two kinds of FCC are excluded from a particular context, it cannot be assumed that this is necessarily for the same reason. Therefore in the discussion which follows, I consider not only the number of similarities from Table 19, but whether this involves common occurrence or common exclusion from the contexts under consideration.

Table 19 - Number of contexts in which various FCCs pattern alike

	non-factive <i>that</i> - clause	factive <i>that</i> - clause	CHC	exclamative	resolutive	interrogative
non-factive <i>that</i> -clause		2	3	3	3	3
factive <i>that</i> - clause	2		3	3	3	3
CHC	3	3		6	6	2
exclamative	3	3	6		6	2
resolutive	3	3	6	6		2
interrogative	3	3	2	2	2	

Unlike the striking common distribution of resolutes, interrogatives and CHCs, constant across all six contexts, all other FCCs pattern alike in two or three contexts. These figures mask some interesting patterns however. The two contexts in which factive and non-factive *that*-clauses pattern alike both involve their common exclusion, from classes 1 and 6. The former of these classes permits only true interrogatives, thus all other FCCs are excluded, whilst the latter permits resolutes, exclamatives and CHCs, but no other FCCs. This is to say that no predicate permits both factive and non-factive *that*-clauses (bearing in mind the discussion of non-factive *that*-clauses in relation to Class 4a in section 5.4.2.4.1, and of factive *that*-clauses in relation to Class 5 in section 4.3.2.5). A similar pattern emerges for true interrogatives and resolutes (hence also true interrogatives and exclamatives, and true interrogatives and CHCs). There are two contexts in which these have a common distribution, and this similarly involves common exclusion, in this instance from Class 2,

⁸⁸ Note that this refers to the number of distinct contexts, defined in terms of predicate classes which show distinct patterns of complementation. As some of these classes involve considerably more members than others, the actual number of specific cases where there is scope for FCCs of different types to distribute in a similar or distinct way may vary quite considerably.

which permits only non-factive *that*-clauses, and Class 3, which permits only factive *that*-clause complements.

This is of significance for two reasons. First, it shows how different a distributional picture arises when the two types of *that*-clause and two types of interrogative are distinguished, in comparison to when a single FCC type ‘declarative’ or ‘interrogative’ is posited (cf. Grimshaw 1979). Under the latter approach, both appear to have a very wide distribution, as in each case this is the sum of two distinct contexts: those in which factive *that*-clauses occur as well as those in which non-factive *that*-clauses can occur in the former case, and those in which resolutes can occur as well as those in which true interrogatives can occur in the latter case. Second, it sheds light on the fact that amongst those who already note distinctions in the behaviour of *that*-clause complements and in the behaviour of interrogatives, there is a strong tendency to ascribe the distinctions between the two types to the matrix predicate under which it is embedded.⁸⁹ In other words, there is taken to be one basic type of ‘*that*-clause’ and one basic type of interrogative with the two distinct patterns of behaviour which they display dependent on the kind of predicate they are embedded under.⁹⁰ This is not the only possible interpretation of the facts, however - they could be treated as two distinct types of clause which differ in such a way as to be incompatible under the same range of predicates. Indeed, the numerous syntactic and interpretive properties taken to differentiate factive and non-factive *that*-clauses, resolutes and interrogatives seem difficult to explain with reference to the matrix predicate under which they are embedded alone, as does the behaviour of the Class 5 predicates, which embed factive *wh*-clauses but not non-factive *that*-clauses.

What also emerges from the overview of the distributional data given here is that in terms of distinct distributional contexts (as opposed to the number of individual predicates) there are just as many environments where non-factive *that*-clauses pattern alike with resolutes, exclamatives and CHCs as there are where factive *that*-clauses do, contrary to a long-standing and frequently-made observation in the literature to the effect that it is factive *that*-clauses which pattern alike with these *wh*-clauses. This has been claimed with specific reference to resolutes by Munsat (1986) and to exclamatives by Ginzburg & Sag (2000), with the systems proposed by these authors based on this assumption. Whilst factive *that*-clauses and resolutes/exclamatives show a common exclusion from occurring under Class 1 and 2 predicates, there is in fact only one class of predicates which permits factive *that*-clauses and resolutes/exclamatives, and that is Class 4. It is to be acknowledged that a very large number of predicates qualify as members of Class 4, which most likely

⁸⁹ See discussion of the Interrogative Uniformity Hypothesis in section 3.2.1.2.

⁹⁰ Ginzburg & Sag (2000) take a different position for interrogatives than for *that*-clauses. They treat the former as one basic type (‘question’), which under certain predicates can be coerced into another (‘fact’), whilst the latter are taken to constitute two distinct types (‘proposition’ and ‘fact’). See discussion in section 5.2.2 above.

contributes to the illusion that the common distribution of factive *that*-clauses and resolutes/exclamatives is a general trend. The class of predicates which permits both non-factive *that*-clauses and resolutes/exclamatives (Class 5) has considerably fewer members, although as we see from Class 1, more familiar predicate classes also contain a limited number of members. Nevertheless, when we calculate in terms of distinct distributional environments, the behaviour is parallel to that of factive *that*-clauses and resolutes/exclamatives. Non-factive *that*-clauses and resolutes/exclamatives are similarly mutually excluded from two predicate classes (Class 1 and Class 3), diverging in distribution in the remaining three cases (Classes 2, 4, 6), just as factive *that*-clauses and resolutes/exclamatives do (Classes 3, 5, 6). The uncovering of such previously unobserved patterns is one of the main contributions of this work. Characterising these parsimoniously is another, and it is this to which I turn in section 5.4.

5.4 Characterising the distribution of FCCs

The patterns which emerge from the data presented and discussed in section 5.3.2 make clear that FCCs which, on the basis of their surface similarities, have in previous accounts been taken to constitute a single clause-type - resolutes and true interrogatives, for instance, or factive and non-factive *that*-clauses - do not have a common distribution. Nor do clauses which might conceivably be taken to constitute a single type on interpretive grounds - the four factive clause-types (resolutes, exclamatives, CHCs and factive *that*-clauses), for instance. Conversely, certain FCCs which in the course of Chapters 3 and 4 were motivated as distinct clause-types (resolutive, exclamatives, CHCs) on the basis of considerable syntactic and interpretive evidence, do turn out to pattern alike. Strikingly, having defined predicate classes on the basis of the range of FCCs that they are able to take, we end up with a surprisingly small number of these: only 6. This emphasises further the point - discussed in section 5.3.3 above, and made most apparent by the common distribution of resolutes, exclamatives and CHCs - that there are clear regularities in the distribution of FCCs which need to be captured.

The common distribution of resolutes, exclamatives and CHCs is unexpected on the widely-held assumption that the distribution of FCCs is determined on the basis of clause-type. Accounts which take such an approach cannot parsimoniously account for the common distribution of resolutes, exclamatives and CHCs, as was made clear in section 5.2 above. This raises the question of which factors are instead responsible for the distribution of FCCs. Whilst all constituting distinct clause-types, resolutes, exclamatives and CHCs can be considered to form a common ‘distributional type’; that is to say there

must be some common characterisation for these three FCCs which distinguishes them from all other FCCs. In the following section, I propose a system which distinguishes all six FCCs under consideration here on the basis of two binary properties. In 5.4.2 I offer some support for this from the existing literature. This proposal will be considered in detail in Chapter 6, when I turn to the specifics of its linguistic encoding.

5.4.1 The ‘distributional types’ of English FCCs⁹¹

My claim is that what is crucial for the distribution of FCCs is not their clause-type, but what I term their ‘distributional type’. The distributional type of a clause is its specification in terms of just two features: [+/-*wh*] and [+/-factivity]. The possible combinations of these two binary features gives rise to four distributional types. These, and the FCCs which realise them, are presented in Table 20. There are three realisations of the [+*wh*, +factive] distributional type: resolutives, exclamatives and CHCs. Interrogatives realise the [+*wh*, -factive] type, factive *that*-clauses the [-*wh*, +factive] type, and non-factive *that*-clauses the [-*wh*, -factive] type.

Table 20 – ‘Distributional types’ of English FCCs

Type of complement clause	[+/- <i>wh</i>]	[+/-factive]	[+/- <i>wh</i> , +/-factive]
non-factive <i>that</i> -clause	- <i>wh</i>	-factive	[- <i>wh</i> , -factive]
factive <i>that</i> -clause	- <i>wh</i>	+factive	[- <i>wh</i> , +factive]
CHC	+ <i>wh</i>	+factive	[+ <i>wh</i> , +factive]
exclamative	+ <i>wh</i>	+factive	[+ <i>wh</i> , +factive]
resolutive	+ <i>wh</i>	+factive	[+ <i>wh</i> , +factive]
interrogative	+ <i>wh</i>	-factive	[+ <i>wh</i> , -factive]

The intuition behind the system is that although resolutives, exclamatives and CHCs qualify as distinct clause-types, for the purposes of distribution they behave as a single ‘type’. This requires identifying properties common to these clauses, on the basis of which they can be selected by the same range of matrix predicates. Resolutives, exclamatives and CHCs are all *wh*-clauses. For resolutives and exclamatives this is uncontroversial, and in section 4.3 it was argued at length that the distributional behaviour of CHCs points to this conclusion for such clauses too. These are not the only *wh*-complement clauses, however: there are also true interrogative complement clauses. Resolutives, exclamatives and CHCs are also all factive clauses. Similarly, however, they are not the only factive clauses - factive *that*-clauses are also factive. What resolutives, exclamatives and CHCs hold in common to the

⁹¹ A less detailed version of the proposal made here is presented in Nye (2013).

exclusion of all other FCCs is the conjunction of these properties: they are both *wh* and factive. Thus I posit this as defining their distributional type. Interrogatives hold in common with resolutive, exclamatives and CHCs the fact of being *wh*-clauses, but are non-factive. Conversely, factive *that*-clauses share the property of being factive, but are not *wh*-clauses. Non-factive *that*-clauses realise the final logical possibility - they are neither factive, nor *wh*-clauses. These latter three FCCs thus have both their own clause-type and their own distributional type.

There are two important points to note about this system. The first is that the system of ‘distributional types’ provides a descriptive characterisation of the properties held in common by clauses which pattern alike in their distribution. It is compatible with a range of different implementations, and does not commit one to any particular analysis of how or where these properties should be encoded, in terms of both the division of labour between the syntactic and semantic components of the grammar, and between the matrix predicate and complement clause within a single sentence. In Chapter 6, I present the particular approach to the encoding of these properties which I favour. The merit of the ‘distributional types’ provided here as a more accurate description of the empirical facts concerning FCC distribution than has been given to date holds regardless of the evaluation of the specific analysis which I propose, however. The second is that the ‘distributional types’ presented in Table 20 are intended to capture all and only those properties of FCCs which play a role in determining their distribution. Thus whilst resolutive, exclamatives and CHCs have a common distributional characterisation as [+wh, +factive] clauses, it is clear that they must be differentiated in other respects in order to account for the syntactic and interpretive differences between these clause-types. Whilst the goal of this work is primarily to capture the distribution of these clauses, in section 6.4 I make a suggestion as to how the [+wh, +factive] clauses are to be differentiated in this regard, as part of a broader consideration of the status of clause-type in a system which does not make reference to this in accounting for the distribution of FCCs.

5.4.2 Characterising predicate classes

In Table 11, predicate classes were defined on the basis of the kinds of FCC complement which different predicates permit. In Table 20, FCCs were assigned a distributional type on the basis of common properties shared by those FCCs which distribute alike, distinguishing them from those with a different distribution. This allows the predicate classes to be restated in terms of the distributional types of their complements, as presented in Table 21.

Table 21 - Characterisation of classes of matrix predicate in terms of the properties of their complements

	Class of predicates	Properties of their FCC complements
1	wonder, ask, inquire...	[+wh, -factive]
2	believe, claim think...	[-wh, -factive]
3	afraid, surprised, too bad...	[-wh, +factive]
4a	know, find out, realise...	[-wh, +factive]; [+wh, +factive]
4b	can't believe, amazing, surprising...	[-wh, +factive]; [+wh, +factive]
5	tell, say, report	[+wh, +factive]; [-wh, -factive]
6	describe, detail, discuss	[+wh, +factive]

Four of the six predicate classes identified permit a single type of FCC, and so their complements can be characterised in terms of a single distributional type: [+wh, -factive] for Class 1 predicates, which permit only true interrogative complements, [-wh, -factive] for Class 2 predicates, which permit only non-factive *that*-clauses, [-wh, +factive] for Class 3 predicates, which permit only factive *that*-clause complements and [+wh, +factive] for Class 6 predicates. As there are three distinct clause-type realisations of the latter distributional type [+wh, +factive], resolatives, exclamatives and CHCs are all possible as the complement to such predicates. The remaining two predicate classes permit more than one distributional type as complement. Class 4 predicates permit [-wh, +factive] factive *that*-clause complements and the three [+wh, +factive] FCCs (resolatives, exclamatives and CHCs) as complements. Class 5 predicates is the most complex - permitting resolatives, exclamatives and CHCs, as well as non-factive *that*-clauses, their complements are either [+wh, +factive] or [-wh, -factive]. CHCs, resolatives and exclamatives, with common distributional type [+wh, +factive] occur with predicates from all the classes boxed in bold in the table.

Like the existing accounts of FCC distribution discussed in the first part of this chapter, the system outlined in Tables 20 and 21 is not intended to provide an explanation as to why particular predicates select the kinds of FCC complements that they do. To begin to understand this, an empirical study of the properties of CP-selecting predicates as nuanced as the current investigation into FCCs is required.

Nevertheless, in providing a more detailed and accurate description of the distribution of a broader range of FCCs than has been offered to date, this account moves in the direction of a deeper understanding of their distribution. New regularities have emerged in the distribution of FCC complements, which present a challenge to the traditional and widespread view that matrix predicates select their FCCs complements on the basis of clause-type. I offer an alternative conceptualisation of the factors relevant for the distribution of FCCs in terms of distributional types composed of the properties [+/-wh, +/-factive], which can be held in common by FCCs belonging to different clause-types. In the following chapter, I make a proposal for a specific implementation of this system.

Ultimately, of course, we would like to understand why the patterns are the way that they are, and why it is these properties in particular which are of relevance. But offering a more accurate description of the empirical facts, as the current account does, is already an important step towards achieving this goal.

5.4.3 Support for the [+/-*wh*, +/- *factive*] system of distributional types

Although my proposal that FCC selection takes place on the basis of distributional type rather than clause-type is novel, support in the literature can be found for the particular characterisations which I give to the distributional types in terms of the properties *wh* and factivity. Note however that no existing work considers, or is able to account for, the distribution of as wide a range of FCCs as my own proposal covers. Certain accounts which posit selection for FCCs on the basis of clause-type nevertheless deem one or both of these properties to be implicated, albeit much more indirectly than in the system I propose. For instance, the interpretive rules which map syntactic structures to interpretive types in Grimshaw's (1979) account are sensitive to the *wh*-status of a clause - *wh*-clauses can be mapped to question or exclamations, but not propositions, and distribute accordingly, and the factivity of exclamatives is seen to limit the range of predicates under which they can occur. Ginzburg & Sag (2000: 78) posit an interpretive type 'fact' as an umbrella for several factive clause-types, and in fact consider (before rejecting) the possibility that predicates may be distinguished on the basis of 'whether they subcategorize for a [WH-] or [WH+] complementizer' (Ginzburg & Sag 2000: 70 f.n.19). The short-comings of these approaches have already been indicated.

There are also a limited number of lesser-known works which emphasise the direct relevance of *wh* or factivity for FCC distribution, even if their empirical coverage is limited. As Grimshaw (1979: 314) notes, 'In Bresnan (1972) it was proposed that predicates which take indirect questions are subcategorized for the abstract complementizer *wh*, which occurs in the underlying structure of interrogatives'. Munsat (1986) refines this approach, identifying three kinds of clausal complement, with a distinction made between two types of *wh*-clause (*wh*-Q and *wh*-*that*), and one non-*wh* clause-type (*that*-clauses). Emonds (1992) recasts Grimshaw's (1979) account in terms of selection for +/-*wh*-CPs. Watanabe (1993: 526) explicitly states that '[t]here are only two types of clauses to be selected by a verb, namely *wh*-clauses and non-*wh*-clauses', although, interestingly, later in the same work posits a 'factive operator...selected by the higher verb' (Watanabe 1993: 529) in order to account for differences in the distribution of factive and non-factive *that*-clauses. These accounts are discussed in more depth in Chapter 6, as support for the implementation of the system of distributional types which I put forward.

5.5 Conclusions

In the course of this chapter I have considered both previous theoretical approaches to accounting for the distribution of FCCs, and different systems of classification which have been applied to the predicates which embed such complements. The weaknesses both of approaches which claim that the distribution of FCCs is determined on the basis of the clause-type of these complements, and of those which attempt to characterise the matrix predicates which embed particular types of FCC in terms of lexico-semantic properties of these predicates, were highlighted. Whilst ultimately we wish to understand why particular predicates select the kinds of FCC complement that they do, in order to achieve this goal we first need to have a clear overview of the empirical patterns to be accounted for. The picture presented in section 5.3.2 is the most complete to date. It considers the distribution of the six types of FCC motivated in Chapters 3 and 4 under 98 FCC-embedding predicates, drawn from previous works on FCC distribution. From this empirical study, certain striking empirical patterns emerge. The first is that, with only a handful of exceptions, predicates can be divided into just six classes on the basis of the range of complements they accept. The second, which in part explains the limited range of complementation patterns attested, is that resolutes, exclamatives and CHCs consistently distribute alike, a highly unexpected finding if FCC distribution is determined on the basis of clause-type. I proposed a system for characterising FCCs on the basis of their distribution, using only the features [+/-wh, +/-factive]. True interrogatives, factive and non-factive *that*-clauses each have a distinct ‘distributional type’, as well as a distinct clause-types. Resolutes, exclamatives and CHCs, despite similarly qualifying as distinct clause-types, have a common ‘distributional type’ they hold in common - all are [+wh, + factive]. I argued that it is the specification of a clause in terms of the features [+/-wh, +/-factive] which is relevant for distribution, not clause-type. I turn my attention in the following chapter, Chapter 6, to the question of the linguistic encoding of these distributional types.

Chapter 6 Encoding distributional types

6.1 Introduction and overview

At the end of Chapter 5 we arrived at a categorisation of the six FCCs under consideration into four classes on the basis of just two properties, *wh* and factivity. This is summarised below in Table 1, which reproduces Table 20 from section 5.4.1. As shorthand, I referred to the four possible specifications arising from the presence or absence of these properties as ‘distributional types’, as each shows a distinct pattern of distribution in terms of the range of matrix predicates under which it can be embedded. Whilst factive *that*-clauses, non-factive *that*-clauses and interrogatives constitute both independent clause-types (defined on the basis of their internal syntactic and interpretive characteristics) and independent distributional types (defined on the basis of external syntactic distribution under matrix predicates), CHCs, exclamatives and resolutive, although each constituting an independent clause-type, have a common distributional type. The main finding of theoretical relevance of Chapter 5 was thus that there is not a one-to-one correspondence between ‘clause type’ and ‘distributional type’.

Table 1 – ‘Distributional types’ of English FCCs

Type of complement clause	[+/- wh]	[+/- factive]	[+/-wh, +/- factive]
non-factive <i>that</i> -clause	-wh	-factive	[-wh, -factive]
factive <i>that</i> -clause	-wh	+factive	[-wh, +factive]
CHC	+wh	+factive	[+wh, +factive]
exclamative	+wh	+factive	[+wh, +factive]
resolutive	+wh	+factive	[+wh, +factive]
interrogative	+wh	-factive	[+wh, -factive]

As was emphasised in Chapter 5, section 5.4.1, the [+/-wh, +/- factive] characterisations were proposed as descriptive characterisations of properties held in common by FCCs which distribute alike. As yet, nothing has been said about whether - and if so, how - these properties are linguistically encoded in the complement clauses in question. It is this question which is tackled in the current chapter. In section 6.2 I argue in favour of the syntactic encoding of distributional types, before in section 6.3 turning to the details of the particular implementation that I favour. Section 6.4 considers what the consequences are for the encoding of clause-type in embedded clauses, once this is no longer seen to be of relevance for selection, and section 6.5 concludes.

6.2 The syntactic encoding of factivity and *wh*

I propose that the distributional type specification of an FCC is syntactically encoded in the complement clause itself. In sections 6.2.1 and 6.2.2 I provide support for the view that the properties of factivity and *wh* respectively are encoded in the syntax of an embedded clause. This leads to the conclusion in section 6.2.3 that selection for distributional types is syntactic selection.

6.2.1 Factivity as a syntactic property of finite complement clauses

Two of the most fundamental questions concerning the encoding of factivity raises – firstly, whether factivity arises as a pragmatic effect, or if it is rather semantic, and secondly, the issue of the locus of factivity (matrix predicate vs. complement clause) – are addressed in sections 6.2.1.1 and 6.2.1.2 respectively. I make the case for working with a semantic definition of factivity, and for there being some underlying structural distinction between factive and non-factive complement clauses. A wide range of accounts have been offered within these boundaries. An overview of these is given in section 6.2.1.3 below.

6.2.1.1 Factivity: semantic or pragmatic?

Despite the fact that considerable attention has been paid to the question of the linguistic encoding of the property of factivity, there is still no consensus on the issue. Recall from the discussion in section 4.4.1 that factivity is the term used to refer to presupposition in the clausal domain, more specifically the presupposition that the propositional content of a complement clause is true. Shanon (1976) makes a principled distinction between semantic presupposition (what is logically implied to be true) and pragmatic presupposition (what a speaker presupposes to be true). It is the former definition of presupposition which I have

been making use of in this work. Whilst opinions are still divided even on the fundamental issue of whether factivity is formally represented in the semantics of particular linguistic expressions, or whether it arises rather as a pragmatic effect (see e.g. Beaver 2010), all the accounts which I discuss in section 6.2.1.3 below favour the former approach. On the theoretical assumptions made about the architecture of the grammar in the current work (see discussion in Chapter 2, section 2.5.1), the existence of systematic syntactic differences between factive and non-factive *that*-clauses, of the type discussed in section 3.2.2.2, lends support to the view that the distinction between such clauses is semantic, and not merely a pragmatic effect, and thus that it has a systematic syntactic (structural) correlate.

6.2.1.2 The locus of factivity: matrix predicate or complement clause?

One approach taken by proponents of the view that factive and non-factive clauses are distinguished semantically, popular since Kiparsky & Kiparsky (1971), is to encode the factive/non-factive distinction directly in the syntax of the finite complement clause itself. This has been achieved by a variety of means, discussed in section 6.2.1.3 below. However, other recent work has argued that ‘factivity is a lexico-semantic concept without a direct correlate in syntax’ (de Cuba & Ürögdi 2009a: 29). De Cuba & Ürögdi (2009a,b), Haegeman & Ürögdi (2010a,b)), Hinzen & Sheehan (2011) and Haegeman (2012a). Melvold (1991) and Roussou (1992) suggest that the difference between factive and non-factive clauses boils down to definiteness - the former are [+definite], the latter [-definite]. Hegarty (1992) & de Cuba cast the distinction rather in terms of familiarity. On this view, the property ‘factivity’ arises from a definite/familiar/referential complement clause only when this is combined with a particular matrix predicate, or with other aspects of the linguistic context.

Whilst this is a promising line of research to pursue, which may hold the potential to explain poorly understood phenomena such as the cases of ‘presupposition suspension’ in exclamatives and CHCs which were discussed in section 4.4.1.2, in this work I stick to the traditional view that the syntactically encoded property which distinguishes the two kinds of *that*-clause under consideration here is factivity. My motivation for doing so is that the other properties are even less well-understood when it comes to their application in the clausal domain. Bhatt (2010: 174), for instance, observes that we still lack a deep understanding of ‘what it means for CPs to be referential’. Pending further investigation of such properties, I cast my account in terms of factivity, although I remain open to the idea that it could be reinterpreted in terms of definiteness, familiarity or referentiality without the fundamental insights that I offer being lost.

What the work of de Cuba & Ürögdi (2009a,b) and Haegeman & Ürögdi (2010a,b) has in common with accounts in the vein of Kiparsky & Kiparsky (1971) is that a structural distinction between the two types of complement clause is deemed to be crucial in giving

rise to factivity, albeit if the connection is less direct for the former authors than for the latter. This sets both kinds of accounts apart from work which attributes the interpretive distinction between factive and non-factive *that*-clauses solely to the predicate under which they are embedded. Under such a view, there is a single kind of *that*-clause complement embedded under both *be glad* and *believe*, under *forget* and *claim*. It receives a factive interpretation when embedded under *be glad* or *forget*, non-factive when embedded under *believe* or *claim*. This is the view taken by Elliott (1974: 239) when he claims that ‘non-exclamatory *that*-complements occur freely with either factive or non-factive predicates’, and is what Grimshaw (1979: 320) seems to suggest, when she states that ‘[s]ince *that*-complements occur with both factive and nonfactive contexts, i.e. both where their propositional content is presupposed and where it is not, there is nothing inherent to *that*-clauses that dictates whether or not they can be presupposed’. As the citation from Grimshaw illustrates, the focus of such accounts is on accounting for the difference in semantic behaviour between factive and non-factive *that*-clauses. It is not obvious how the numerous syntactic differences observed between factive and non-factive *that*-clauses would fall out of a distinction made between matrix predicates alone, however.¹ Recall also from the discussion in section 3.2.2.2 (G), that in certain languages there is an obvious distinction between factive and non-factive declarative complements, as these are introduced by different complementisers.

An additional difficulty for such accounts is the behaviour of Class 5 predicates, such as *tell* and *report*, which were discussed in detail in section 5.3.2.4.5. There it was demonstrated that whilst the *wh*-clause complements to such predicates are factive, the *that*-clause complements are non-factive. This is unexpected if the source of factivity is the matrix predicate, yet can be explained if complement clauses differ in terms of their internal structure. Moulton (2009: ix) similarly ‘makes the case for enriching the meanings of clausal complements’, at the expense of the embedding predicate, albeit primarily for non-finite complements. Nevertheless he also believes that ‘[t]he strategy for handling the selection of finite complements should be to reassign the meaning from the embedding verb to the embedded clause’ (Moulton 2009: 199). Table 2 summarises the three broad approaches taken in the literature to the locus of factivity. Given the convincing evidence for syntactic distinctions between factive and non-factive complement clauses, it is the third approach which is taken to factivity in the current work.

Table 2 – Approaches to the locus of factivity

¹ Recall that Ginzburg & Sag (2000: 72-78) assign different types to the two kinds of *that*-clause complement (factive *that*-clause complements are ‘facts’, non-factive *that*-clause complements are ‘propositions’) on the basis of semantic distinctions alone.

Approach to the locus of factivity	Account illustrative of this approach
Factivity is due to the matrix predicate alone	Elliott (1974), Grimshaw (1979)
Factivity is due to both matrix predicate and complement clause	Kiparsky & Kiparsky (1971), de Cuba & Ürögdi (2009a,b), Haegeman & Ürögdi (2010a,b)
Factivity is due to the complement clause alone	Munsat (1986), Watanabe (1993), Haegeman (2006)

6.2.1.3 Approaches to the syntactic encoding of factivity

A diverse range of approaches has been taken to the syntactic encoding of factivity. I cannot do justice to all of these here, but give a brief overview in Table 3 below. I refer to the authors cited for details of their proposals.

Table 3 - Approaches to the syntactic encoding of factivity

Approach to the syntactic encoding of factivity	Account illustrative of this approach
Factivity is attributed to the presence of a null nominal/determiner	Kiparsky & Kiparsky (1971) de Cuba (2007), Kastner (2013) <u>factive clauses are (like) relative clauses:</u> Aboh (2006) Krapova (2010), Legate (2010), Tamba & Torrence (2013)
Factivity is attributed to the presence of an operator	Melvold (1991), Roussou (1992), Watanabe (1993), Zanuttini & Portner (2003), Haegeman & Ürögdi (2010a,b), Haegeman (2012)
Factivity is attributed to clause size	McCloskey (2006), Haegeman (2006), de Cuba (2007), de Cuba & Ürögdi (2009a,b)

As the summary in Table 3 indicates, three main strands can be identified. These are not necessarily mutually exclusive, nor exhaustive.² The first strand involves accounts in which a parallel is drawn between the presupposition of the propositional content of a *that*-clause,

² Cinque (1990: 30), following Cardinaletti (1989), suggests that factive clauses differ from non-factive clauses in their structural position, for instance. Munsat (1986) distinguishes factive (*wh-that*) and non-factive (*that*) deep structure complementisers.

and the existential presupposition characteristic of definite descriptions, and between the syntactic properties of these CPs and DPs. This parallelism is extended to the structure posited, with the factivity of particular kinds of clausal complements attributed to the presence of a null nominal and/or determiner in these clauses. This approach has been common since Kiparsky & Kiparsky (1971), and is still deemed by certain authors to be one of the ‘standard treatments of factive clauses’ (Krapova (2010: 1267)). Certain recent accounts have explored the particular angle that there is a (structural) parallel between factive and relative clauses. The second strand rather attributes factivity to the presence of a dedicated operator. In the case of Melvold (1991) this is an iota operator, with similar proposals found in Roussou (1992) and Watanabe (1993). Zanuttini & Portner (2003) draw on Watanabe, but cast the operator as inherently factive. In recent work, Haegeman and Ürögdi (2010a, 2010b) and Haegeman (2012a: 263-272) claim that what is crucial is not the mere presence of an operator, but the movement of this operator. Concerning the identity of the operator, Haegeman (2012a: 270) considers ‘the possibility that the operator that derives complement clauses to factive verbs originates in the ‘positive’ variant of IrrealisP (i.e., the realis operator)’.

The third and final strand contains a variety of proposals which all involve the same basic idea that factive and non-factive clausal complements are distinguished in terms of (clause) size. On a broad conception, this includes accounts such as Kiparsky & Kiparsky (1971) and Legate (2010) from the first strand, which posit an additional DP layer in factive clauses in comparison to non-factives, and accounts from the second strand such as Watanabe (1993) and Zanuttini & Portner (2003), which posit additional structure in factive clauses in order to be able to host the operator. In a more abstract sense, accounts which posit the presence of an additional feature or operator in factive clauses also attribute to these something ‘extra’ in comparison to non-factive clauses. Yet there are also accounts in which the size of the clause is deemed to be of relevance in its own right. McCloskey’s (2006) recursive CP structure for interrogatives, in comparison to a single CP approach for resolutive clauses is one such approach. Haegeman (2006) though similar in spirit, differs both in the data accounted for and in the implementation. Taking a cartographic perspective, she proposes that ‘factive complements lack Force (and TopP and FocP, projections which are, by hypothesis, licensed by Force) while non-factive complements encode Force’ (Haegeman 2006: 37). Both of these accounts reverse the trend to view factive clauses as involving ‘something more’: it is rather non-factive clauses which involve more structure. De Cuba (2007: 4) argues explicitly that work along the lines of Kiparsky & Kiparsky (1971) ‘had things backwards’ and that ‘it in [sic] non-factive constructions that are

associated with a more articulated syntactic structure than factives’.³ The work of de Cuba & Ürögdi (2009a,b) is in a similar vein.

6.2.2 *Wh* as a syntactic property of finite complement clauses

When it comes to the encoding of the *wh*-nature of a finite clause complement, there is, at least on the surface, less diversity than concerning the encoding of factivity. In all recent accounts, this is attributed to the presence of a *wh*-feature. However, just as the property of factivity has been subject to different interpretations and implementations in different accounts, so Suñer (1991: 297) notes that ‘[o]ne shortcoming with the features [+/-wh] is that they are used ambiguously in the literature’.⁴ On the one hand, a *wh*-feature is used to characterise the C head of a clause which allows a *wh*-expression in its specifier position, on the other it is treated as an equivalent to the Q(uestion)-feature which certain accounts of interrogatives (Katz & Postal 1964, Baker 1970) posit as the source of both question interpretation and of the restriction of embedded interrogatives to occurring under certain question-embedding predicates (see discussion in section 2.5.3.2). The “pseudo” *wh*-features discussed by McCloskey (2002: 186) can be seen as an instance of the former kind - ‘movement-driving features optionally present on C, or optionally added to the left edge of “phases” (Chomsky 2000)’, as can Baker’s (1970) *wh*-feature, discussed in footnote 38 of Chapter 2. Rizzi’s (1996) criterial *wh*-feature, discussed in section 6.3.1 below, qualifies as the latter. In order to clarify this double function for *wh*, Suñer (1991) rather posits two distinct *wh*-features: a [+/-wh] lexico-syntactic feature corresponding to the former use, and a [+/- WH] semantic feature serving the function of the latter. Three of the four possible combinations of these features are realised, as illustrated in Table 4, where the (Spanish) complement clauses which Suñer (1991: 297) takes to realise these are also indicated. ‘Indirect questions’ are what I term ‘true interrogatives’, ‘semi-questions’ correspond to what I label ‘resolutives’.

Table 4 - Combinations of semantic and syntactic *wh*-features and the complement types which realise these: Suñer’s proposal [Suñer (1991: 297), ex. (30)]

semantic	syntactic	complement types
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³ Basse’s (2008: 55) proposal is in a similar vein to de Cuba’s (2007). He follows de Cuba in assuming that ‘the presupposition of factive constructions stems from the lack of an [assertion] feature in ForceP of the subordinate clause’ and that in turn ‘the lack of an [assertion] specification...renders factive complements defective phases’.

⁴ Note that even this statement is not neutral, as it already makes a commitment to a particular view of [wh] as a binary feature, which may receive either a positive or a negative value. An alternative conception (realised in the work of Watanabe (1993), for instance), is that the contrast is simply between presence of the feature [wh] and its absence.

+WH	+wh	indirect questions
+WH	-wh	*
-WH	+wh	semi-questions
-WH	-wh	<i>que-/that-clauses</i>

Under Suñer's (1991) approach, being semantically [+WH] means having question interpretation and is restricted to true interrogatives. What is held in common then not only between true interrogatives and resolutive, but presumably also between exclamatives, CHCs, free relatives and relatives is the syntactic specification [+wh]. Authors such as Ramchand (1996) and Šimík (2008) have however argued that when the semantic contribution of *wh* is taken to be less specific than 'question', then a common semantic component can be identified across different structures which are syntactically *wh*. Šimík (2008: 273) claims for instance that '*wh*-morphology in questions and relatives is indicative of DP-internal quantification'. If this is the case for the whole range of *wh*-structures, then there is after all no distinction between being syntactically *wh* and being semantically *wh*.

The data presented in this work argue in favour of Suñer's (1991) view that it is necessary to identify a purely formal syntactic *wh*-feature without an automatic semantic correlate. As discussed in Chapter 4, the distribution of CHCs indicates that they are formally *wh* in the same syntactically-relevant sense as true interrogatives, resolutive and exclamatives. Yet finding a common semantic characterisation for all of these clauses seems impossible, before we even add free relatives and headed relative clauses into the equation. Unlike the *wh*-expressions in interrogatives and exclamatives, complementiser *how* is a C head, not a *wh*-phrase in a specifier position binding variable, as demonstrated in section 4.5.1. In fact, as observed in Chapter 4, although in surface form CHCs most closely resemble resolutive (and bare *how*-exclamatives), in interpretation the closest point of comparison is with factive *that*-clauses. For this reason, whilst not disputing the idea that certain *wh*-expressions or -clauses indeed do show semantic commonalities, I reject the claim that there is a common semantic component to every *wh*-expression or *wh*-clause and take the *wh*-feature held in common by the *wh*-FCCs under consideration here to be a purely formal syntactic feature.⁵

However, the broader range of *wh*-clauses which I take into consideration also suggests a broader construal of the property of being semantically *wh* than interrogativity/question interpretation. Following Zanuttini & Portner's (2003) proposal that a *wh*-operator-variable

⁵ As Michal Starke [p.c] points out, it is not correct to term this a morpho-syntactic feature, as not all members of the paradigm are morphologically *wh* (*how* in English, cf. also e.g. *chi* 'who', *che* 'what' vs. *dovè* 'where' in Italian).

relation is common to both interrogatives and exclamatives (see section 6.4 below for further discussion), I take the presence of a *wh*-operator-variable relation to be the defining property of a semantically *wh*-clause.⁶ A semantic *wh*-feature on my conception is an operator feature found in certain *wh*-expressions. Under this definition, not only true interrogatives, but also resolutives and exclamatives are semantically *wh*. Complementiser *how*-clauses, which involve a *wh*-expression, but not a *wh*-operator, are not. My conception of what it means to be semantically *wh* is thus less restrictive than Suñer's, in not being restricted to true interrogatives, but more restrictive than Ramchand's (1996) and Šimík's (2008), in that it is not taken to hold for every expression that is syntactically *wh*. My approach results in the system summarised in Table 5 for the 6 FCCs under consideration here. In this table, I continue to use Suñer's [+/-WH] notation as shorthand for the presence or absence of a *wh*-operator-variable relation.

Table 5 - Combinations of semantic and syntactic *wh*-features and the complement types which realise these: my proposal

semantic	syntactic	complement types
+WH	+wh	true interrogatives resolutives exclamatives
+WH	-wh	*
-WH	+wh	complementiser <i>how</i> - clauses

⁶ Emonds (1992: 227 f.n.8) states that his 'proposal to identify WH in both questions and exclamatives exemplifies Chomsky's (1957) position "that undeniable, though only imperfect correspondences hold between formal and semantic features in the language" For Emonds, the *wh*-feature held in common between questions and exclamations is purely syntactic, given the distinct interpretations of these clauses. See section 6.3.6.2 for further discussion of his account.

-WH	-wh	factive <i>that</i> -clauses non-factive <i>that</i> -clauses
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In my system, the possibility of being semantically *wh* without being syntactically *wh* is excluded just as it is on Suñer's: to be semantically *wh* on my account involves the presence of a *wh*-operator-variable relation, which necessarily entails the presence of an element which is syntactically *wh*.⁷ *That*-clauses (both factive and non-factive) remain non-*wh*, syntactically and semantically. True interrogatives are still syntactically and semantically *wh*, although so are resolutes and exclamatives on my definition of this property.⁸ CHCs are syntactically but not semantically *wh*. Thus CHCs hold their syntactic *wh*-status in common with true interrogatives, resolutes, and exclamatives, accounting for the distributional similarities, but their semantic *wh*-status in common with *that*-clauses, accounting for certain interpretive and syntactic similarities.

6.2.3 Syntactic selection

What resolutes, exclamatives and CHCs - clauses with a common distribution - hold in common is their status as syntactically *wh*-clauses. This suggests that it is the syntactic-*wh* status of a clause which is relevant for the purposes of selection, rather than its semantic-*wh* status. I suggest that selection on the basis of factivity is similarly syntactic selection. This is plausible, given the evidence that factivity is also syntactically encoded in FCCs (see section 6.2.1.2). The outcome that selection by a matrix predicate for the distributional type of its FCC complement can be treated as a unified case of syntactic selection is a desirable one.

In assuming the relation between matrix predicate and complement clause to be one of selection, my approach is more traditional than the accounts of de Cuba & Ürögdi (2009a,b) and Haegeman & Ürögdi (2010a,b). These authors rather propose that the two kinds of finite clausal complement which they posit, referential and non-referential, are in principle available with any CP-selecting predicate. However, certain combinations are ruled out, due to incompatibility between the lexico-semantic content of the matrix predicate and the

⁷ Suñer (1991: 297-298) considers the possibility that Spanish *si* 'if/whether' could be a realisation of the [+WH, -wh] specification, given that 'Spanish *si* does not have the appearance of a syntactic *wh* (or *Qu*-)' (Suñer 1991: 297). However, she rejects this on the grounds firstly that 'Spanish *si* displays the behaviour of a *wh*-phrase in [Spec, CP]' (Suñer 1991: 298), and secondly that *si*-clauses occur under the same range of predicates as *wh*-interrogatives.

⁸ In my account, true interrogatives and resolutes are distinguished not in terms of whether or not they are semantically *wh*, but rather in terms of factivity, as set out in Table 1 above. In section 6.4 below, I present my proposal for the differentiation of resolutes and exclamatives in interpretive terms.

semantic contribution of the complement clause. Whilt my account could in principle be reconstrued in the latter terms, pending the detailed investigation of the properties of CP-embedding matrix predicates which would be necessary to understand at more than an intuitive level what ‘compatibility’ and ‘incompatibility’ between a matrix predicate and a complement clause involves, I cast my account in terms of selection.

Note that beyond assuming that the selectionally-relevant properties of the embedded clause must be locally available for selection by the matrix predicate, I do not make any claims about the precise nature of the selection relationship. Given that the focus of this work is primarily upon FCCs, and not upon the predicates which select them, I do not commit myself to a view of how precisely a predicate encodes the requirement for a complement bearing a particular feature, nor about the details of the relationship which holds between matrix predicate and complement clause. There is no clear proposal to date concerning this in cartography, the framework within which I situate my proposal, and to begin to explore the issue here would take us too far from the central focus of the work.

6.3 The syntactic encoding of distributional types

In section 6.3, motivation was provided for the view that factivity and *wh*, the components of the distributional types proposed for FCCs, were syntactically encoded and selected. Nevertheless, such a view is in principle compatible with a range of different implementations. In this section I argue in favour of one particular approach to the encoding of distributional types. I begin my outlining the theoretical background to my proposal in section 6.3.1, before discussing the specifics of the distributional type specifications and the derivations that I posit for the various FCCs in sections 6.3.2 and 6.3.3 respectively. 6.3.4 explains the absence of the non-attested structures, and section 6.3.5 deals with some remaining issues. In section 6.3.6 I discuss some existing literature which supports the present proposal, before drawing conclusions on the syntactic encoding of distributional types in section 6.3.7.

6.3.1 Theoretical background to my proposal

As was discussed in sections 2.5.3.3 and 5.2.1.2, Rizzi’s (1997: 262) cartographic proposal posits ForceP as the highest projection in the clausal left periphery. It is this projection which encodes ‘the clausal type (Cheng 1991), or the specification of Force (Chomsky 1995)’, which is to be understood as ‘the fact that a sentence is a question, a declarative, an

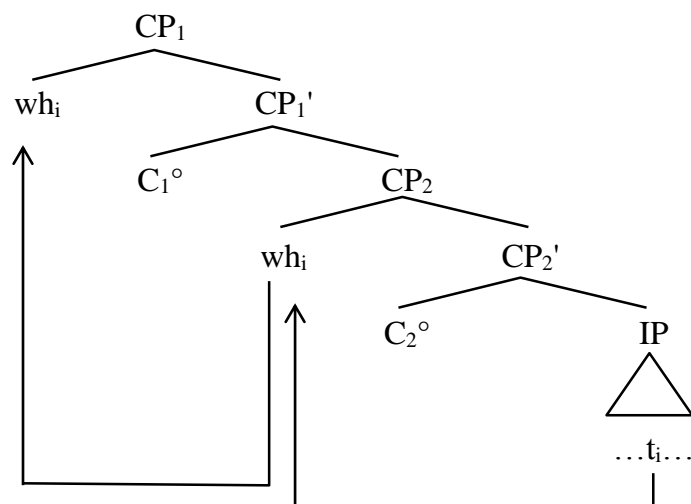
exclamative [...] and can be selected as such by a higher selector' (Rizzi 1997: 262). Interesting questions arise concerning such an approach in the light of the conclusions that the distribution of FCCs is governed not by 'clause-type' (i.e. not for the categories 'resolutive', 'interrogative', 'factive *that*-clause', 'non-factive *that*-clause', 'exclamative' and 'CHC', which were established in Chapters 3 and 4 on the basis of the unique combination of syntactic and interpretive properties which each of these FCCs displays), but rather by their distributional type specification in terms of the features [+/-wh, +/-factive]. I argue, contra Rizzi (1997) and many other authors, that it is this distributional type which has to be locally available to a higher selector (see footnote 14 for the relevant definition of 'local'), rather than clause-type. In the remainder of this chapter, I explore the possibility of reinterpreting Rizzi's (1997) account in such a way as to permit clausal complement selection on the basis of the properties [wh] and [factivity], whilst as far as possible remaining true to the tenets of the cartographic approach which his view encapsulates: the locality of selection, for instance, and the *One Feature One Head* principle, according to which 'each morphosyntactic feature would correspond to an independent syntactic head with a specific slot in the functional hierarchy' (Cinque & Rizzi 2008: 54). This raises some challenges, given the necessity for two distinct features of the complement clause to be visible to the higher selector.

In my account, just as in Rizzi's (1997), the selectionally-relevant information must be encoded in such a manner as to be able to be locally selected by the matrix predicate: our views diverge only on the nature of the information to be encoded. Given that, under my view, the relevant information is not clause-type/clausal force but rather distributional type, I characterise the highest projection in the clausal left periphery as (Distributional)TypeP. Like Rizzi's ForceP, it is the locus of selectionally-relevant information. In contrast to ForceP, the specification of Type alone does not provide the characteristic flavour (or clause-type) of a complement clause which differentiates it from all others. The Type head will represent the same [+wh, +factive] information in a CHC, exclamative and resolutive clause, for instance. In this regard it can be viewed as an implementation of Rizzi's (1997: 311 f.n.6) suggestion for a possible refinement of his system, following 'Bhatt and Yoon's (1991) distinction between type markers (our force heads) and simple subordinators, heads which make a clause available for (categorical) selection independently of its force'. My TypeP is in some ways closer to such a simple subordinator, in that the specification which it encodes is not that of clause-type, or force, in Rizzi's terms. My proposal differs, however, in the absence of any left peripheral heads directly associated with clause-typing. Coniglio & Zegrean's (2012: 229) similarly make a proposal 'to split Rizzi's (1997) ForceP into two distinct projections'. However, the characterisation of these projections as 'Illocutionary Force (ILL) and Clause Type (CT)' (Coniglio & Zegrean's (2012: 229)) sets their proposal even further apart from my own, given my view that illocutionary force is not encoded syntactically, but rather arises pragmatically (see discussion in section 2.4). The question

of what it is in my account that is responsible for the interpretive differences between FCCs is dealt with in section 6.4 below.

The idea that the highest head in the clausal left periphery serves a clause-typing function is not restricted to cartographic works. Van Craenenbroeck (2004: 32), who proposes the double CP structure sketched below in (1), posits that ‘CP₁ is the projection related to clause typing’, citing Bennis (1997, 2000), who similarly posits TypP as the highest of the two CP projections he assumes.^{9 10} However, like Rizzi (1997), these authors conceive of ‘clause type’ in the sense of the particular syntactic/semantic fingerprint of a clause. My proposal differs in that I distinguish this notion of ‘clause-type’ from the ‘distributional type’ of a clause in the sense of its selectionally-relevant properties, claiming that it is the latter alone which is encoded in the highest left peripheral projection, TypeP.

(1) minimal *wh* [van Craenenbroeck (2004: 33), ex. (54)]



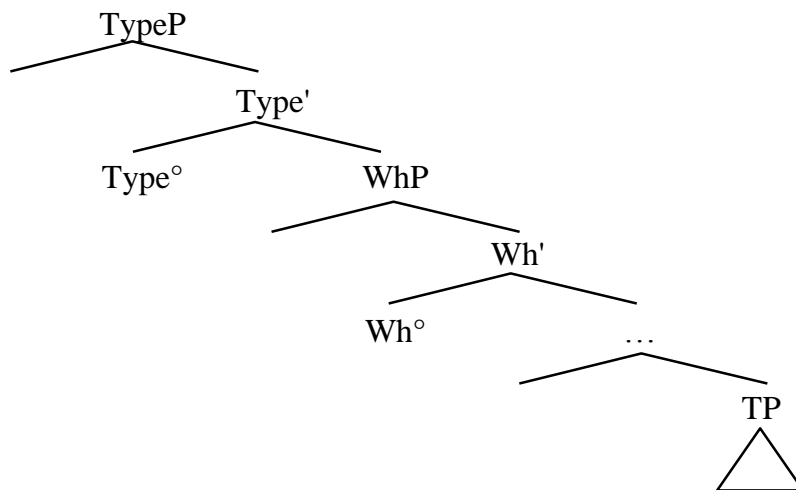
⁹ Van Craenenbroeck (2004: 33) offers a different derivation for clauses which rather involve complex *wh*-expressions. Whilst still involving the same basic double structure, the *wh*-expression is externally merged in the specifier of CP₁, checking the clause-typing feature. An operator moves from within the IP to the specifier of CP₂, checking the operator feature there. The differences in syntactic behaviour between simple and complex *wh*-expressions lie beyond the scope of this work. See van Craenenbroeck (2004: 35-38) for discussion.

¹⁰ Van Craenenbroeck (2004: 31) is aware of the potential connections between his account and cartographic maps of the clausal left periphery. He emphasises that his focus on two left peripheral projections alone ‘is not because I believe these are the only two CP-projections that are available. Rather, for the purposes of the present discussion, they are the only two that are crucial and hence it is them (and only them) I will focus on’. He leaves the question of

whether his proposal ‘can be incorporated into accounts which assume a much richer structure of the CP-domain’ open for future research. As discussed below, however, certain aspects of his proposal - the movement of a *wh*-expression on from the projection in which it has checked an interpretive feature, for instance - are at odds with cartographic assumptions.

The presence and function of the lower CP projection which van Craenenbroeck (2004: 33) posits, his CP₂, also has a parallel both in existing cartographic work and in my own proposal. According to van Craenenbroeck (2004: 32), it ‘is the projection where operator/variable-dependencies are being created (i.e. where operator features are being checked)’: a *wh*-expression raises from its TP-internal (IP-internal in van Craenenbroeck’s terms) base position to the specifier of CP₂ to establish such a dependency. Although my proposal differs from van Craenenbroeck’s in many regards, I also posit a projection below the highest left peripheral projection, whP, which I similarly take to be the locus of the establishment of *wh*-operator-variable relations. The structure which I have posited to date for the clausal left periphery is represented below in (2).

(2) My proposal for the structure of the clausal left periphery (provisional)



Empirical support for the view that *wh*-movement can target a position lower than the highest left peripheral projection can be provided from Gungbe and Hungarian. For the

former language, Aboh & Pfau (2010) provide examples such as (3).¹¹ This illustrates ‘displacement of the *wh*-phrase to the left of a focus marker’, where ‘the focus marker is located to the right of the complementizer’ (Aboh & Pfau 2010: 93). Similar patterns are attested in Hungarian (see e.g. Puskás (2000)). Following Aboh (2004), Aboh & Pfau (2010) suggest that whilst the complementiser *dò* ‘that’ is the Force head, the *wh*-phrase *ménù* occupies the specifier of the lower FocusP, the head of which is realised by the Focus particle *wè*. This is motivated by the fact ‘that *wh*-phrases and focused constituents are mutually exclusive both in matrix and embedded clauses’ (Aboh & Pfau 2010: 99). What is particularly interesting is that neither Aboh & Pfau (2010) nor van Craenenbroeck (2004) take *wh*-movement to target a projection inherently associated with interrogative interpretation, a view reflected in my own account. Whilst for van Craenenbroeck (2004), the *wh*-phrase does nevertheless serve a clause-typing function when it moves on from spec-CP₂ to spec-CP₁, as illustrated in (1), Aboh & Pfau (2010: 121) diassociate *wh*-movement from interrogative interpretation altogether, making the strong claim that ‘*wh*-phrases are not inherently interrogative and do not participate in clause-typing in any way’. Whilst in full agreement with the first part of this statement (see discussion in section 6.2.2 above), in section 6.4 below I suggest that there may be a connection, albeit indirect, between *wh*-movement and clause-typing. In connection with this, my account also departs from Aboh & Pfau’s (2010: 94) view that ‘questions uniformly involve Inter, that is, the locus of the feature [interrogative] that is visible at the discourse-syntax interface’, pointing in the direction of interrogativity as a compositional construct, rather than a primitive.¹² Nevertheless, in positing a lower left peripheral landing site for *wh*-operators which - unlike that posited in certain other work (Rizzi 2001, Shlonsky & Soare 2011) - is not to be understood as an exclusively ‘interrogative’ position, these accounts are a source of inspiration for my own.

- (3) Òn kànbíó dò ménù wè wá? [Aboh & Pfau (2010: 93), ex.(4b)]
 1.SG ask that who FOC come
 ‘I asked who came?’

As observed, in van Craenenbroeck’s account the *wh*-expression, having raised from within the IP to spec-CP₂ to check its operator feature must raise yet higher, to spec-CP₁, in order

¹¹ With thanks to Bernd Kappenberg and Jenny Peebles for their assistance in the representation of Gungbe characters.

¹² Aboh & Pfau (2010) do not explicitly discuss the mechanism they assume for the selection of interrogative complement clauses. The projection which they deem to be the locus of interrogative clause-type, InterP, is not the highest in the clausal left periphery.

to be able to check its clause-typing feature.¹³ Under the cartographic assumptions which I make in my account, such a movement step is impossible. I follow Rizzi (1996, 2006, 2007) in positing that movement to a scope-discourse position in the clausal left periphery - otherwise referred to as a ‘criterial position’ (Rizzi 2007: 146) - is motivated by the need to meet a “Criterion”. This is defined by Rizzi (2007: 146) as ‘the requirement demanding the creation of a local Spec-head configuration which is then passed on to the interface systems where the relevant interpretive instruction is triggered’. The general format of the Criteria as set out by Rizzi (2006: 102) is given in (4), where F is a question, topic, focus or relative feature.¹⁴ A concrete instantiation of a Criterion is provided in (5), with the *Wh*-Criterion, drawn from Rizzi (1996: 64).¹⁵ A consequence of the need to establish criterial relations for interpretive properties is that ‘interpretable criterial features can perform the role of attractors of movement’ (Rizzi 2006: 110). In a configuration such as (6), ‘C attracts XP bearing a matching criterial feature’ (Rizzi 2006: 110). I follow Rizzi (2006: 109) not only in making ‘standard Minimalist assumptions on the fact that movement is guided by a system of morphosyntactic features: basically the attractor and the attractee are characterized by a certain shared feature specification’, but also in assuming that ‘criterial attraction is assumed to be done directly by the interpretable features’ (Rizzi 2006: 10). This contrasts with what is assumed for A-movement, which is motivated by a need to value (and hence delete) uninterpretable features. Just as Rizzi (2006: 110) states in relation to his own account, it would be possible to recast my proposal in terms of a system in which uninterpretable features are also the attractors of A'-movement, without altering the fundamental idea.¹⁶

- (4) XP_F and X_F must be in a Spec-head configuration, for $F = Q, \text{Top}, \text{Foc}, R, \dots$
[Rizzi (2006: 102), ex.(8)]

¹³ I refer the reader to van Craenenbroeck (2004) for the motivating evidence he provides from Dutch dialect data for this CP-internal movement, and for the structure in (1) more generally.

¹⁴ In relation to their discussion of the Subject Criterion, Rizzi & Shlonsky (2006, 2008) suggest that Criteria can also be satisfied in a head-head configuration, when the features of a higher head match those of a head which is (immediately) lower. Rizzi & Shlonsky (2008: 139) offer the revised statement of Criterial satisfaction, given here in (i), which covers cases of both spec-head and head-head Criterial satisfaction. As Rizzi & Shlonsky (2008: 139) state, ‘[w]hat the two configurations have in common is locality: nothing intervenes between the criterial head Subj and the element which satisfies the criterion, be it a Spec or a head’. As all the cases I consider here involve spec-head Criterial satisfaction, I continue to make use of the definition given in (4).

(i) For $[+F]$ a criterial feature, X_{+F} is locally c-commanded by A_{+F} . [Rizzi & Shlonsky (2008: 139), ex. (54)]

¹⁵ As made clear in section 6.2.2 above, I do not equate [wh] with interrogativity.

¹⁶ In recent work, Rizzi (2012) ties the presence of criterial freezing in certain configurations and its absence in others to the operation of the labelling algorithm proposed by Chomsky (2013). I do not explore this idea in the current work.

(5) The *Wh*-Criterion

- A. A *wh*-operator must be in a Spec-head configuration with $X^{\circ}_{[+wh]}$.
- B. An $X^{\circ}_{[+wh]}$ must be in a Spec-head configuration with a *wh*-operator.

[Rizzi (1996: 64), ex.(6)]

(6) $C_F \dots \dots X_{P_F} \dots \dots$

[Rizzi (2006: 110) ex.(27)]

I take the *Wh*-Criterion to be operational in the WhP which I propose. Movement of a *wh*-expression bearing the feature [wh] to spec-WhP is motivated by the need for a criterial relation to be established between the [wh] feature on the *wh*-expression, and the [wh] feature borne by the Wh head. So far, this is not incompatible with van Craenenbroeck's proposal, which could be reinterpreted in such terms. However, Rizzi (2007: 147) additionally proposes 'a kind of earliness principle [...] which makes an expression available to the interface systems as soon as the expression reaches a scope-discourse position'. This is known as Criterial Freezing, and can be formulated informally as the restriction that '[a] phrase meeting a Criterion is frozen in place' (Rizzi 2007: 146). A more precise formulation of Criterial Freezing is given in (7). Adopting (7), a *wh*-expression which has raised to spec-WhP in order to meet the *Wh*-Criterion will be frozen in place and unable to undergo further movement. Thus an onward movement step to the specifier of a higher left peripheral projection will not be licit. My WhP then shares its criterial nature with Rizzi's (1996) WhP, and the IntP and QP proposed by Rizzi in later work (Rizzi 2001, 2012), being a scope position for *wh*-expressions. Like Rizzi's (1996) WhP and van Craenenbroeck's (2004: 33) CP₂, its interpretative contribution does not extend beyond the establishment of *wh*-operator-variable relations - it is not inherently associated with interrogativity or exclamation, for instance.

(7) Criterial Freezing: In a criterial configuration, the Criterial Goal is frozen in place.

[Rizzi (2007: 149) ex. (14)]

Whilst in my account the *wh*-expression does not target the specifier of the highest projection - indeed, it cannot, for having established a criterial relation with Wh^o it will be frozen in place - my proposal does not diverge so drastically from van Craenenbroeck's, as the *wh*-specification will nevertheless be visible at this highest level within the clausal complement. This is due to the fact that the Type head which I propose also resembles Rizzi's Force^o in another regard: in its ability to conduct Search. Although no formal definition of this operation has yet been provided, it is described by Rizzi (2012: 6) as a 'dependency between the highest C head and the criterial head relevant for clause typing [...] to ensure selection for the proper clause type from a higher verb', in cases where 'Force and the criterial layer involved in clause typing [...] do not coincide' (see also Moscati (2006), and the discussion of this work in Authier (2013)). In so far as the goal of the Search

operation is to locate and copy on to the Force head a clause-type value present elsewhere in the clause, it might be seen as comparable (or even equivalent) to the more familiar minimalist operation of Agree, which in the work of Krivochen & Miechowicz-Mathiasen (2012) is even explicitly defined as ‘Search + Copy Value’. However, whilst Agree suggests the matching of features, to my knowledge, Rizzi does not made explicit whether, for instance, he assumes the Force^o head of an interrogative clause to enter the derivation already typed (as interrogative), and then to Search for a matching specification on a criterial head situated lower in the clausal left periphery, or whether the Force^o head starts out unspecified and acquires a specification for a particular clause-type in the course of the derivation. As the latter conception of the operation is closer to the implemented in my own account, I retain the label Search, distinct from Agree.¹⁷

The empirical motivation for positing such an operation comes from cases where it is clear that the information concerning clause-type is represented lower in the clausal left periphery than ForceP. One such case is the Gungbe example already discussed above in (3). Another is the Italian example (8), where we see the presence of a topicalised phrase, *a Gianni* ‘to Gianni’, between the matrix predicate *non so* ‘(I) don’t know’ and the interrogative head *se* ‘if’, which Rizzi (2001) proposes is the head of a lower left peripheral projection specialised for interrogativity, IntP. With a TopP separating IntP from ForceP, we have evidence that there are cases where the clause-typing information necessary for selection sits lower in the clausal left periphery than is suggested by Rizzi (1997) and van Craenenbroeck (2004).¹⁸

Shlonsky (2006) provides similar cases from Hebrew. For the examples in (9), (a) shows an embedded *wh*-interrogative which appears compatible with an analysis in which the interrogative *wh*-expression *le mi* ‘to whom’ is in spec-ForceP, and thus available for local selection by the matrix predicate. However, in (b) the accusative-marked object of the lower clause predicate is topicalised to a position preceding the interrogative *wh*-expression, much as in (8). Given cases such as (3), (8) and (9), an additional mechanism is required in order for the clause-type information represented lower in the clause to be visible in ForceP for selection by a higher predicate, and for the idea that selection is local to be maintained.

¹⁷ See also Authier (2013), who posits Agree between ForceP, FinP, and a TP-internal Σ P in order to ensure the representation of the polarity feature at the highest level of the clause, as such a feature is also taken to be of relevance for clause-typing.

¹⁸ Note that Rizzi (1997: 311 f.n.6) already observes ‘that operators do not always fill the highest Spec of the C system [...] the actual position of the operator is determined by the relevant A' Criterion [...] and may or may not coincide with the Spec/Force’. In spite of this recognition, he nevertheless ‘continue[s] to assume that in such cases the highest head of the C system expresses Force, as is required if selection takes place in a strictly local configuration’, without exploring a mechanism for making sure that clause-type information contributed lower in the clausal left periphery is available in the top-most projection.

Rizzi (2012) proposes that Search by Force for a criterial head involved in clause-typing is just such an operation.¹⁹ In my account, where it is not information such as ‘interrogative’ which is required to be represented at the top of the clause, but rather [+/-wh, +/-factivity], I suggest that Type^o searches for a *wh* criterial feature. The precise implementation of this proposal is discussed in greater depth in sections 6.3.2 and 6.3.3 below, in the context of the specific derivations which I propose for the various FCCs.

- (8) Non so, **a Gianni**, se gli potremo parlare.
 not know.1SG to Gianni if to.him could.1PL speak
 ‘I don’t know, to Gianni, if we could speak to him.’ [Rizzi (2012: 6), ex. (29a)]

- (9) a. ša’alta oti le mi le haxzir **et ha sefer**.
 (you).asked me to whom to return ACC the book
 ‘You asked me who to return the book to.’
 lit: ‘You asked me to whom to return the book.’
 b. ša’alta oti **et ha sefer** le mi le haxzir.
 asked.2SG me ACC the book to whom to return
 ‘You asked me who to return the book to.’
 lit: ‘You asked me the book to whom to return.’ [Shlonsky (2006: 3), ex. (4)]

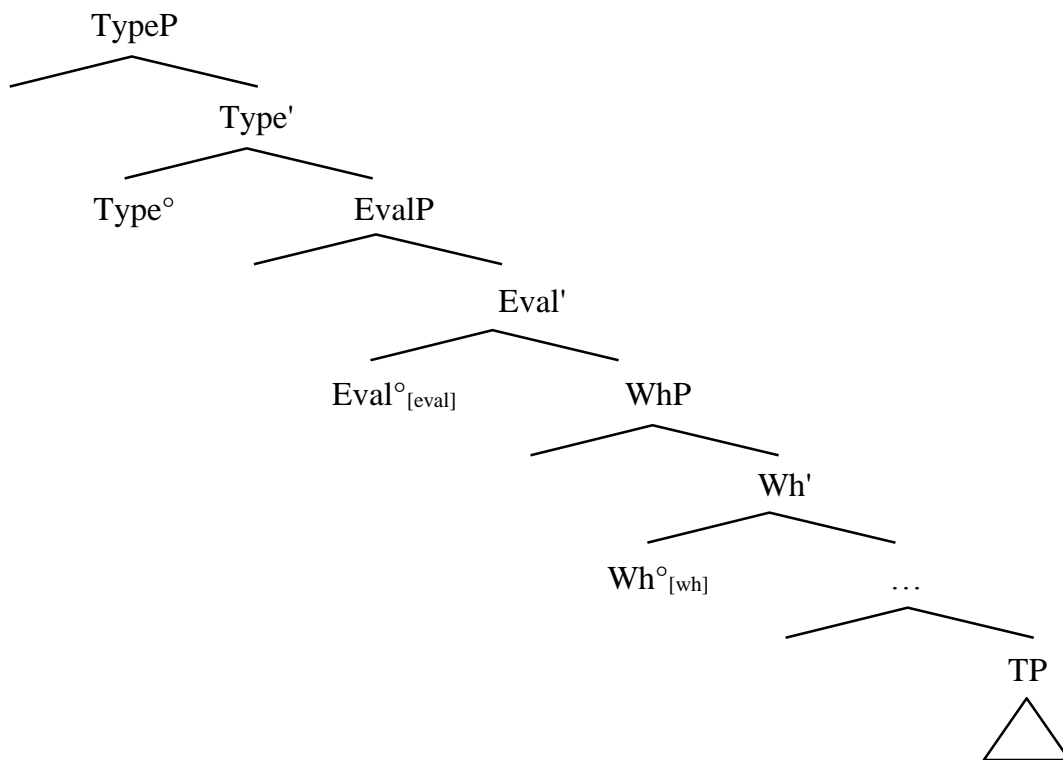
Before I turn to these structures, there is one final aspect of the theoretical background to my proposal which I need to introduce. This is the presence of an additional left peripheral projection, which I term Eval(uative)P, following Munaro & Obenauer (1999) who postulate a projection with the same name and similar function, albeit for the root domain.²⁰ EvalP sits higher than WhP but lower than TypeP, as represented below in (10). This parallels the way Munaro & Obenauer’s (1999: 218) EvalP sits higher than their IntP, for although I do not conceive of my WhP as a projection specialised for interrogativity, it is nevertheless the projection whose specifier is occupied by an interrogative *wh*-phrase in a true interrogative complement clause, as illustrated in (13) below. The fact that I posit an extra layer of structure in comparison to van Craenenbroeck (2004: 30) can be related to the fact that I discuss additional kinds of clause-type: EvalP will be of relevance in my account

¹⁹ Shlonsky (2006) makes an alternative proposal which achieves the same effect. Drawing on Grimshaw (2000, 2005), he suggests that the CP domain constitutes a single extended projection, created by remerge of a single C head which bears multiple features, only one of which is active in any given CP-internal projection. A feature introduced anywhere in the CP is thus visible throughout the whole extended projection, including - crucially for the purposes of selection - in the highest projection. I refer to these authors for discussion. The current proposal could be cast in terms of extended projection rather than Search without altering the basic insights that it offers.

²⁰ The relation between this left peripheral EvaluativeP and the EvaluativeP which Cinque (1999) posits within TP remains to be explored.

only in the derivation of exclamatives, a clause-type which he does not consider. In this regard, my use of EvalP diverges from Munaro & Obenauer's (1999: 218), as they posit a distinct 'projection ExclP, whose specifier is the landing site of bare *wh*-phrases in main *wh*-exclamatives', reserving EvalP for the pseudo-interrogatives they discuss. Just as I explore the idea that there is no projection specialised for interrogative function, so I posit EvalP rather than ExclP as the landing site of exclamative *wh*-expressions.

(10) My proposal for the structure of the clausal left periphery



At this point, it is important to emphasise that in any given derivation, I assume that only those projections which are activated by the presence of a (potentially null) constituent in their head or specifier position will be projected (cf. Grimshaw 2005). Thus, for the six FCCs which are the primary concern of this work, it is in fact only in exclamatives that all three of the projections illustrated in (10) are present. I assume that TypeP must minimally be present in all FCCs, having a default subordinating function, and discuss restrictions on

the occurrence of certain combinations of these projections further in section 6.3.5 below.²¹ Note furthermore that I am not claiming that these are the only three projections which constitute the clausal left periphery. The cartographic works cited in this section, amongst others, have shown the need to postulate a range of dedicated left peripheral positions to host not only complementisers and *wh*-expressions, but also topicalised and focussed constituents, and adverbial modifiers. Rizzi (2012: 7) provides the map in (11), although numerous other variants exist. Rizzi himself describes (11) as ‘a first approximation’. The aim of this section is not to offer a comprehensive cartography of the clausal left periphery of each of the six FCCs under consideration, but rather to explore the possibility of encoding in these complement clauses the properties identified in this work as being distributionally-relevant, under the view that FCCs are selected on the basis of a composite distributional type, rather than a primitive clause-type. In what follows, I discuss only those projections which are of direct relevance to the encoding of distributional type in a clause, namely those represented in (10). This is not incompatible with the view that additional dedicated left peripheral positions also exist to host topics, foci and adverbial modifiers.

- (11) [Force [Top* [Int [Top* [Foc [Top* [Mod [Top* [Fin [IP]]]]]]]]]]
[Rizzi (2012: 7), ex. (33)]

6.3.2 Type specifications of FCCs

With this background in place, I now turn to discuss the specific derivations which I propose for the six FCCs under consideration here. As noted above, a common component to all of these is the presence of (Distributional)TypeP, which records the selectionally-relevant features of an FCC. I propose that there are two basic variants of Type^o: a factive variant and a non-factive variant. Factivity involves the positive type-specification [fact], and has the interpretive consequence that the propositional content of the subordinate clause is presupposed. Non-factivity is to be understood as the absence of [fact], which results in a default non-factive subordinate reading for the clause so introduced.²² This is marked as [0_{fact}] on Type^o.²³ CHCs, exclamatives, resolutives and factive *that*-clauses thus involve a

²¹ The discussion here concerns finite clausal complements only. As Lieven Danckaert [p.c] notes, if Type^o serves a subordinating function, then it must be absent from root clauses. This is logical, given that the function of recording distributional type information is of relevance only in the embedded domain. Beyond this, I do not take a stance on the structure of the left periphery of root clauses.

²² In spirit there is a similarity here to Cinque (1999), who proposes that the adverbial projections within IP are always present, but have one reading when their specifier is filled, and another - default - reading when it is empty. These adverbial heads too have interpretive import and yet not criterial.

²³ I notate the absence of factivity as [0_{fact}] to avoid confusion with the null morpheme Ø.

Type head with the specification [fact]. Non factive *that*-clauses and true interrogatives involve a Type head with the specification [0_{fact}], indicating absence of factivity. This is summarised in Table 6 below. Thus a [+factive] specification in the descriptive terms of Table 1 above is now to be understood as a Type head specified as [fact], a [-factive] specification now corresponds to the default non-factive Type head with the specification [0_{fact}].

Table 6 - Type° specifications of FCCs: factivity

	Type° specification
CHC	[fact]
exclamative	[fact]
resolutive	[fact]
factive <i>that</i>-clause	[fact]
non-factive <i>that</i>-clause	[0 _{fact}]
true interrogative	[0 _{fact}]

Some comments are in order with respect to how my proposal can be assimilated to existing proposals, particularly in cartographic terms. Whilst Type° is modelled on Rizzi's Force°, the idea of extending the cartographic approach of encoding interpretive properties in functional heads to factivity is, to the extent of my knowledge, novel. Given the uncertainty as to whether Rizzi's (1997) Force° enters the derivation already bearing a specification for a particular clause-type, it is not clear to what extent the idea that Type° enters the derivation already typed as [fact] or [0_{fact}] is a departure from his original proposal. What Type° does seem to hold in common with Force° is the exceptional property amongst left peripheral projections of encoding information which of clearly interpretive import, and yet not being a criterial head. Although this is never explicitly stated for Force°, nowhere is there a suggestion that it must be accompanied by a force-bearing element in its specifier position. As discussed above, there is clear empirical evidence that interrogative *wh*-expressions may sit in a lower projection than ForceP in an (embedded) interrogative clause. Whilst not an idea put forward in cartographic work to date, one could hypothesise that the ability of Force° to conduct Search is a consequence of its exceptional status amongst the left peripheral heads in being interpretively relevant yet non-criterial. I propose that the Type head I posit displays the same behaviour. Despite contributing factive or default non-factive interpretation to the clause, Type° is not (inherently) a criterial position: a [fact] Type head does not require a matching element of type [fact] in its specifier position. In this regard, it differs from EvalP and WhP, which are typical in introducing an interpretive property and in also being criterial positions.

One component of the distributional type of FCCs, [+/- factive], is thus already encoded directly in the Type head, and therefore accessible to selection. The distinction between factive and non-factive clauses is thus the primary distinction between complement clauses. However, as discussed above, a second component, [+/- wh], is also required. I propose that the Type head bears a sub-specification for [wh]. Recall from section 6.2.2 that the relevant conception of a *wh*-feature when it comes to distribution is as a formal syntactic feature, even if in all cases other than complementiser *how*-clauses this is introduced by a *wh*-operator which in addition qualifies as being semantically *wh*. This distinction is not represented in the derivations below. Just as was the case for factivity above, [+wh] in the distributional types presented in Table 1 now corresponds to the [wh] specification, [-wh] to the [0_{wh}] specification.²⁴ Thus a factive Type head is either positively specified for [wh], or in the absence of such a specification receives the default non-*wh* specification [0_{wh}]. A non-factive Type head is similarly either [wh] or [0_{wh}]. The four combinations are each realised, as the summary in Table 7 below makes clear. Here the descriptions of distributional types given in Table 1 are recast in terms of feature specifications. CHCs, exclamatives and resolutive share the Type^o specification [fact-wh], whilst factive *that*-clauses are [fact-0_{wh}]. Non-factive *that*-clauses are [0-0_{wh}], whilst true interrogatives are [0_{wh}].²⁵

Table 7 - Type^o specifications of FCCs

	Type^o specification
CHC	[fact-wh]
exclamative	[fact-wh]
resolutive	[fact-wh]
factive <i>that</i>-clause	[fact-0 _{wh}]
non-factive <i>that</i>-clause	[0 _{fact} - 0 _{wh}]
true interrogative	[0 _{fact-wh}]

Note, crucially, that the claim is not that Type^o can bear two distinct interpretive features, [fact] and [wh]. This would be at odds with the cartographic principle of *One Feature One*

²⁴ I notate the absence of *wh* as [0_{wh}] to avoid confusion with the null morpheme Ø, and the indication of the absence of factivity [0_{fact}].

²⁵ Similarities can be seen between the system I propose, and that of Munsat (1986), discussed in section 6.3.6.3 below.

Head.^{26 27} Type^o introduces the single interpretive feature [fact], or is otherwise marked for the absence of this feature with the default non-factive specification [0_{fact}]. This feature itself is sub-specified as [wh] or [0_{wh}], for *wh*- and non-*wh* clauses respectively. Upon closer scrutiny, however, some problems emerge with the classification in Table 7. Table 8 below shows the surface forms which realise the type specifications proposed in Table 6. I start from the assumption that the overt complementisers - complementiser *how*, factive and non-factive *that* - realise the Type head. If this is so, then in the case of the [fact-wh] specification, there are two distinct surface forms realising a single feature specification: *how* in CHCs (given the evidence presented in section 4.5.1.3 that complementiser *how* is a *wh*-head, not a specifier) and Ø in exclamatives and resolutives (where the *wh*-expression is a phrase which rather occupies a specifier position).²⁸

²⁶ *One Feature One Head* only concerns feature specification of heads when externally merged: it is possible to have more than one feature with semantic import on a single head, if the head in question is a composite head derived by head movement (as is postulated in the derivation of exclamatives, discussed below in (16)-(18)). Thus the representation of multiple semantically-relevant features within a single projection does not appear to be excluded on principled grounds.

²⁷ There seem to be exceptions to this principle, however. The left peripheral Focus projection has been seen to be the landing site not only of focalised phrases, but also of root interrogative *wh*-expressions (Rizzi 1997, Cruschina (2011: 170-176)), a view motivated by the inability of a focussed constituent and an interrogative *wh*-expression to co-occur within the left periphery of a single (root) clause (although see Lee (2001), Rizzi (2001), Shlonsky & Soare (2011) for different revisions to this idea). Cruschina (2011: 170) therefore proposes that Focus^o can be endowed with two distinct criterial features: [foc] and [wh]. Interrogative *wh*-expressions are taken to bear both [foc] and [wh]. When the *wh*-expression is moved to spec-FocP, these two features can individually be checked in a single criterial configuration with Foc^o. In a derivation with fronting of a (non-*wh*) focussed constituent, both this constituent and the Foc head bear only [foc]. Cruschina (2011: 172) acknowledges that the idea that ‘the two features [wh] and [foc] are checked in one and the same projection (i.e. FocP)... may be seen as going against one of the main tenets of cartography, expressed by the *One-Feature-One-Head* principle, according to which “each morphosyntactic feature would correspond to an independent syntactic head with a specific slot in the functional hierarchy” (Cinque & Rizzi 2008: 54)’. Nevertheless, the weight of evidence from the syntactic, semantic and prosodic similarities shown between fronted focussed constituents and fronted interrogative *wh*-expressions is sufficient for him to conclude that this constitutes ‘a clear exception to the *One-Feature-One-Head* principle’ (Cruschina (2011: 172)). Potentially then [fact] and [wh] could be treated as two distinct features in my own proposal, which would then constitute another such exception.

²⁸ There are also cases of different type specifications being spelt out by the same surface form (both [fact-wh] and [0_{fact}-wh] have a realisation as Ø, [fact-0_{wh}] and [0_{fact}-0_{wh}] as *that*), but this is less problematic. These can be treated as cases of (accidental) homophony. Recall from the discussion in Chapter 3, section 3.2.2.2 (G) that in certain other languages, such as Modern Greek, the equivalents to English factive and non-factive *that* are in fact realised by distinct lexical items.

Table 8 - Type^o specifications and surface forms of FCCs: final forms

	Type^o specification	surface form
CHC	[fact-wh]	<i>how</i>
exclamative	[fact-wh]	Ø
resolutive	[fact-wh]	Ø
factive <i>that</i>-clause	[fact-0 _{wh}]	<i>that</i>
non-factive <i>that</i>-clause	[0 _{fact} -0 _{wh}]	<i>that</i>
true interrogative	[0 _{fact} -wh]	Ø

Furthermore, whilst there seems good motivation for deeming *how* to enter the derivation as [wh], factive and non-factive *that* as [0_{wh}], at this point it seems purely stipulative to claim that certain phonologically null *wh*-expressions already enter the derivation sub-specified as [wh], others as [0_{wh}]. I therefore propose that although the type specifications given in Table 7 are indeed the final specifications which will be visible to a higher selecting predicate, certain FCCs enter the derivation with a type specification which differs from their final specification. Specifically, based on the English data examined here, I suggest that whilst all Type heads enter the derivation specified for [fact] or [0_{fact}], only those Type heads with lexical content also bear a sub-specification for [wh] or [0_{wh}] at the point at which they enter the derivation. Phonologically null type heads, on the other hand, enter the derivation without sub-specification for the presence or absence of *wh*. This they acquire in the course of the derivation, by Rizzi-style Search. The function of the Type head can be summarised as introducing the specification for factivity, and recording that for *wh*. In three of the four *wh*-clauses under consideration here, the Type head enters the derivation without a sub-specification for *wh*. Only in the case of CHCs does the Type head come fully- and positively-specified for factivity, with a *wh* sub-specification.²⁹ Just as was claimed to be the case for [fact] above, I suggest that [wh] introduced by Type^o has a special status in being interpretive but not criterial: Type^o is thus never an inherently criterial position.

²⁹ And potentially also resolutive *whether*-clauses. This idea is briefly discussed below, although *whether*-clauses are beyond the scope of the current work.

Table 9 represents the specifications of the various type heads at the point at which they enter the derivation in comparison to the final forms presented in Table 9. Nothing alters for CHCs, factive *that*-clauses and non-factive *that*-clauses. As these all involve an overt realisation of the Type head, the lexical item enters the derivation fully-specified for both the property of factivity and its sub-specification for (the presence or absence of) *wh*. The Type head in exclamatives, resolutives and true interrogatives, however, is null and enters the derivation specified for factivity but not sub-specified for (the presence or absence of) *wh*. In these clauses, this value is not introduced by the Type head, but acquired in the course of the derivation. On the reasonable assumption that the presence of a Type head which is not fully-specified will cause the derivation of the clause in question to crash crash (much in the spirit of Cheng 1991), it must acquire a specification in order for the derivation to converge. A Type head which still does not bear a sub-specification for *wh* at the end of the embedded clause derivation runs the operation Search, looking for a *wh*-criterial head lower in the clausal left periphery. If Type° locates such a head then it receives a [wh] specification, which to a higher selecting predicate will be indistinguishable from a Type head which entered the derivation bearing such a specification. If Type° does not locate such a head, then it receives the default [0_{wh}] specification, which to a higher selecting predicate will similarly be indistinguishable a Type head which entered the derivation bearing such a specification. Thus on this conception, Search does not determine whether or not the derivation converges, as it never fails to provide a *wh*-specification for Type°: it either returns [wh], or fails to do so, in which case a default [0_{wh}] specification results.³⁰ What it does (partially) determine is the Type-specification of a clause, and hence the range of predicates under which it can be embedded. With this system in place, I now turn to consider the structures that I propose for each kind of FCC in turn. I begin with CHCs, the structure of which was already discussed at some length in section 4.5.1.

Table 9 - Type° specifications and surface forms of FCCs: initial and final forms

	Type° specification: initial	Type° specification: final	surface form
CHC	[fact-wh]	[fact-wh]	<i>how</i>
exclamative	[fact - ____]	[fact-wh]	Ø
resolutive	[fact - ____]	[fact-wh]	Ø
factive <i>that</i>-clause	[fact-0 _{wh}]	[fact-0 _{wh}]	<i>that</i>
non-factive <i>that</i>-clause	[0 _{fact} - 0 _{wh}]	[0 _{fact} -0 _{wh}]	<i>that</i>
true interrogative	[0 _{fact} -____]	[0 _{fact} -wh]	Ø

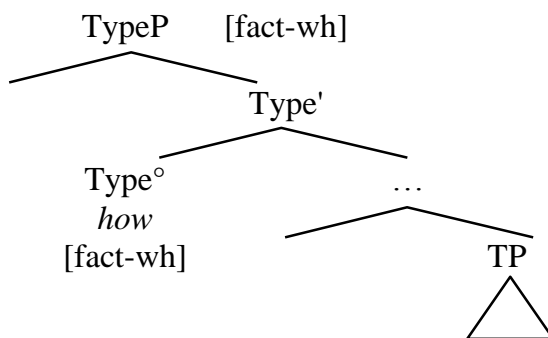
³⁰ In this regard, it is reminiscent of Fallible Agree (see e.g. Preminger 2011).

6.3.3 Derivations for FCCs

6.3.3.1 Derivation for a CHC

Many aspects of the structure of CHCs (cf. (12)) were already motivated in Chapter 4: that complementiser *how* is base-generated high in the clausal left periphery; that it is a head rather than a phrase in a specifier position; that despite the similarity to the declarative complementiser *that* in this regard, CHC nevertheless retains its status as a *wh*-expression in a syntactically relevant sense.³¹ These facts are now captured the system introduced in sections 6.3.1 and 6.3.2. I take complementiser *how* to be an overt realisation of the Type head, the highest projection in an embedded clause (cf. (10)). From the interpretive properties of CHCs, discussed at length in section 4.4, we can deduce that it is a factive variant of the Type head. Given that *how* was shown to be a *wh*-expression in a syntactically relevant sense, it is more specifically the [fact-wh] variant. *How* comes fully-specified for Type, thus all the selectionally-relevant information is contributed at the top of the clause, and is therefore visible for selection by a higher predicate without any need for Search.

(12) Structure of a CHC



As discussed in section 6.2.2 above, the *wh* of complementiser *how* is a formal feature, and does not have semantic import in the way that it does in the *wh*-operators involved in interrogatives and exclamatives. It is therefore not criterial, and no *wh*-expression is

³¹ Although in the absence of a phrase in spec-TypeP in (12), the specifier position is presumably not projected, for clarity of representation I illustrate the full X'-structure, in order to make clear the contrast between complementiser *how* as Type head and resolute *wh*-expressions in spec-TypeP (cf. (14) below).

required in spec-TypeP.³² In fact, it would not be possible to have a *wh*-phrase in spec-TypeP of a CHC, as a *wh*-expression bearing a semantic *wh*-feature would fail to be in the criterial configuration which is required for interpretive features. The *wh*-feature introduced by complementiser *how* as Type head differs then from that introduced by the lower Wh° head, in that the former is a purely formal syntactic feature, the latter contributes to semantic interpretation. On the assumption made above that being semantically *wh* automatically entails being *wh* in a formal syntactic sense, but not vice versa, then a predicate selecting for a formal syntactic feature will not make a distinction between exclamatives and interrogatives on the one hand, CHCs on the other, as all are *wh* in the sense required.

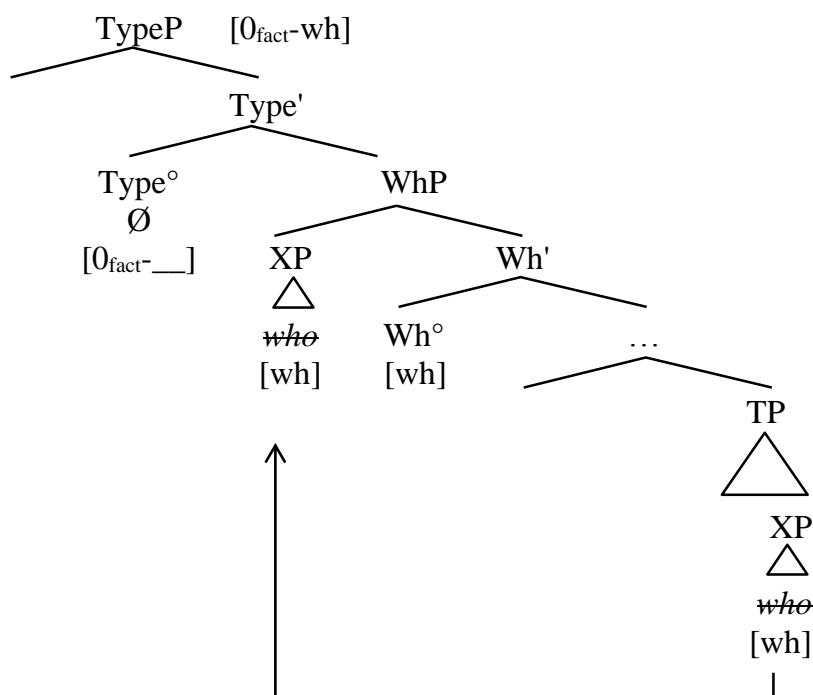
6.3.3.2 Derivation for a true interrogative

The second derivation which I discuss is that of a true interrogative (cf. (13)). This is also a straightforward case, as my proposal diverges little from Rizzi's (2012) approach to such clauses. An interrogative *wh*-expression such as *who* needs to move to a scope position: the semantic [wh] feature which it bears must enter into a criterial relation with a functional head bearing the same feature. Thus *who* raises from its base position within the TP to the specifier position of WhP, the projection where operator-variable relations are established. As this is a criterial configuration (cf. (4)), then following (7) the *wh*-phrase is frozen in position and cannot undergo further movement. WhP is not the highest projection in the clausal left periphery, however. As in every other FCC, TypeP is present. In true interrogatives, this is the default subordinator variant, bearing no factive feature. In English *wh*-interrogatives, the Type head has no lexical content, thus, following my assumptions, it enters the derivation without a *wh*-specification.³³ As such a specification is required in order for the derivation to converge, the Type head conducts Search. It identifies the *wh*-criterial head of WhP (with which the interrogative *wh*-phrase is in a criterial relation) which serves to Type the clause as *wh*, giving the specification [0_{fact}-wh], visible at the top of the clause for selection by a higher predicate.

³² More generally, it would seem that in cartography overt realisations of functional heads introducing interpretive features - the complementiser *that*, for instance - do not require a phrase bearing the same feature in their specifier.

³³ It may be the case that in true interrogative *whether*-clauses, *whether* is the head of TypeP. In this case, the head would enter the derivation bearing the specification [0_{fact}-wh], and no application of Search would be required to yield the *wh* status of the clause. An advantage of this proposal would be that it would potentially give an explanation for the fact that Dutch *hoe* 'how' and *of* 'whether' apparently cannot co-occur when the *hoe* in question is complementiser-*how* (Marjo Van Koppen [p.c] and Erik Schoorlemmer [p.c]): they would compete for the same position. However, additional assumptions would have to be made in order to account for the fact that in certain Dutch dialects interrogative *hoe* and *of* can co-occur, and then in the order *hoe of*. A thorough investigation of the properties of *whether*-clauses is required before any conclusions are drawn, however.

(13) Structure of a true interrogative



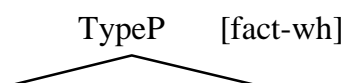
6.3.3.3 Derivation for a resolute

It is instructive to consider the derivation for a true interrogative (13) in comparison to that for a resolute (14). I suggest that resolutives differ from true interrogatives in lacking WhP. This might seem surprising, given that WhP is posited as the locus of *wh*-operator-variable relations. However, I claim that it is precisely the fact that the locus of such a relation in resolutives is different which accounts for the syntactic and interpretive differences between the two types of clause which were discussed at length in section 3.2.1. Given that not only in English, but in all other languages with which I am familiar, the same range of *wh*-expression is available in both true interrogatives and resolutives, I assume that a resolute *wh*-expression such as *who* similarly bears the criterial feature [wh].³⁴ Like interrogative *who*, resolute *who* must reach a scope position. On the assumption that, in contrast to true interrogatives, the numeration for a resolute does not contain Wh[°], then at the point when Type[°] is merged, the *wh*-expression is still in its base position within TP. Unless it reaches a scope position, the derivation will not converge however. I suggest that

³⁴ Scottish Gaelic is a potential counter-example. However, resolutives in this language appear to have a more free relative-like structure. This requires further investigation. I am grateful to Christopher Lewin and to Gary Thoms for discussion of the Scottish Gaelic facts.

as a last resort, a resolute *wh*-expression may raise to spec-TypeP, as represented in (14). Although not inherently a criterial position, this is nevertheless sufficient to satisfy the requirements of the [wh] feature borne by the resolute *wh*-expression. The head of a resolute contrasts with that of a true interrogative in being factive. However, as in English it similarly lacks lexical content, it also enters the derivation without a *wh*-specification.³⁵ In this instance, the clause ends up typed [wh] not due to Search, but due to a spec-head relation between the moved resolute *wh*-expression in spec-TypeP, and the Type head, which requires a *wh*-specification. In sharing its interpretively-relevant *wh*-specification with the Type head, the resolute *wh*-expression creates the criterial configuration which it requires.³⁶ The *wh*-expression is thus frozen in place and cannot undergo further movement. The difference to a standard criterial configuration is that movement is driven purely by the criterial goal, which bears a criterial *wh*-feature, not by the presence of a head bearing the same feature (see van Craenenbroeck (2006), Bošković (2007), Preminger (2008) for recent uses of foot-driven movement). Such a head is the outcome of, not the motivation for, *wh*-movement.³⁷

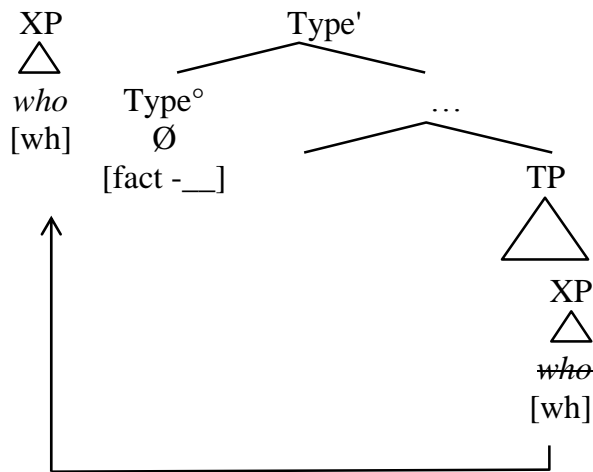
(14) Structure of a resolute



³⁵ In line with what was suggested in footnote 29, one might assume that the Type head in a resolute *whether*-clause should have the feature specification [fact-wh]. This does not seem desirable though, given firstly that this is the specification assumed for complementiser *how*, and secondly and even more compellingly, that resolute *whether*-clauses do not appear to be factive (see Broekhuis & Nye 2013). It is not obvious how such clauses should be incorporated into the system presented here.

³⁶ As Liliane Haegeman [p.c] notes, this is reminiscent of Rizzi's (1996) 'dynamic agreement'.

³⁷ The question arises as to whether the [_{fact}___]-specified Type° head of a true interrogative could not also receive a *wh*-specification through the presence of a *wh*-interrogative expression externally merged in its specifier position, in the absence of WhP. Similarly, nothing in the system as yet rules out deriving a resolute which involves a [fact-___] head and a lower WhP, targeted by the resolute *wh*-expression as the landing site of *wh*-movement. I turn my attention to the non-attested derivations in section 6.3.5 below.



What support is there for positing such a derivation for resolatives? Firstly, although differing substantially from the structure which McCloskey (2006) proposes, it nevertheless serves to capture many of the distinctions to true interrogatives which he identifies (see section 3.2.1 for detailed discussion). Resolatives still involve less structure than true interrogatives, as is also the case under McCloskey's analysis. The structures in (13) and (14) provide an alternative motivation for the availability of embedded clause adjuncts preceding the *wh*-expression which introduces the clause in true interrogatives but not resolatives. Nothing rules out the possibility of additional projections occurring between TypeP and WhP. A plausible candidate is Top(ic)P: Rizzi (2012) suggests that TopP can occur between his ForceP and IntP (cf. (11)), and these are in many ways the analogue of my TypeP and WhP. Adjuncts hosted in this projection in true interrogatives would precede the *wh*-expression, which sits in spec-WhP. If resolute *wh*-expressions sit rather in spec-TypeP, as in (14), then there is no higher structure in the embedded clause which could host such an adjunct.³⁸ An adjunct occupying the specifier position of the highest TopP (assumed to occur immediately below TypeP) will still sit lower in the structure than the *wh*-expression in spec-TypeP. A further distinction between true interrogatives and resolatives discussed by McCloskey (2006) is the availability of SAI in the former but not the latter, at least in certain varieties of English. We have scope to explain this within the system presented here, if the verb can raise from T° to Wh° but not to Type°.³⁹

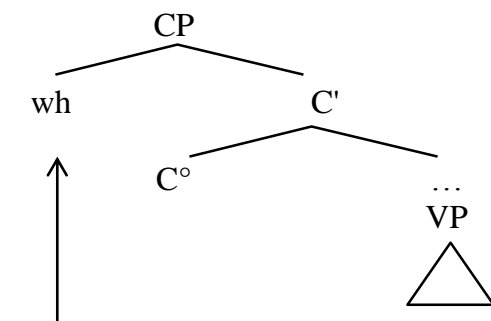
³⁸ This would also explain the impossibility of embedded clause adjuncts preceding the complementiser in CHCs, and in both factive and non-factive *that*-clauses, as in each case the complementiser is taken to realise Type°. What would then remain to be explained is why such adjuncts are similarly excluded from exclamatives, where the *wh*-expression sits in spec-EvalP, lower than the highest Topic position. An alternative explanation for the exclusion of such adjuncts in factive clauses is given in section 6.3.6.2. Even if this revised account is adopted, the current approach could still be appealed to in the case of non-factive *that*-clauses.

³⁹ As Liliane Haegeman [p.c] points out, another advantage of the current approach is that positing *wh*-movement to a very high position in the clausal left periphery creates a similarity between resolatives and relative clauses. As was discussed in depth in Chapter 3, section 3.2.4, these clause-types hold many properties in common, leading to their frequent confusion/conflation in the literature.

A final motivation for the structures proposed here comes from proposals which have independently been made concerning the historical development of complementiser *how*. As discussed in section 4.5.1.1, this has been conceived of in terms of a more general reanalysis pathway in which *wh*-items develop from specifier to head in the CP domain, as discussed by Roberts & Roussou (2003), Willis (2007) and van Gelderen (2009), with the latter author's proposal illustrated in (15) below. Given the common distribution of resolutes and CHCs, and the frequent surface similarity between *how*-resolutes and CHCs, it seems likely that the former were the source of the latter. Note that the structures given here for both CHCs (12) and resolutes (14) involve the introduction of the [wh]-specification directly within TypeP, in contrast to true interrogatives (13) and exclamatives (16)-(18). In terms of the derivations given in (12) and (14), the historical development of complementiser *how* can be seen as the reanalysis of a *wh*-phrase bearing a semantic *wh*-feature and internally merged in the specifier position of a [fact] Type head, into a realisation of the [fact-wh] Type head itself, base-generated in the clausal left periphery, which is [wh] in formal but not semantic terms (via an intermediate stage in which *how* still occupies spec-CP rather than the C head position, but is externally-merged in this position).⁴⁰ This is in line with the pathway for reanalysis in the CP domain schematised in (15). Thus we can link the structures motivated here for CHCs and resolutes on the basis of their synchronic syntactic properties to independent proposals concerning the diachronic development of the former from the latter.

(15) The CP cycle (adapted from van Gelderen (2009: 152), figure 1)

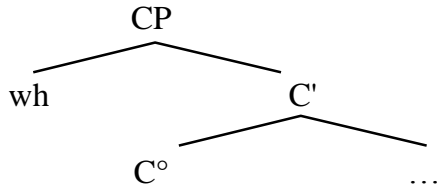
(a) Stage 1: *wh*-movement from within VP to spec-CP



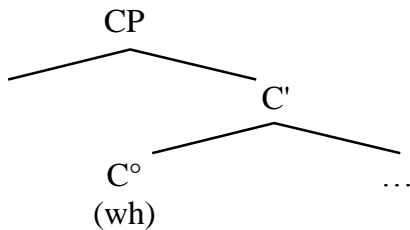
⁴⁰ This may seem to suggest that *how* gains rather than loses a feature in the reanalysis process: it goes from realising [wh] alone to [fact-wh]. Recall however that [fact-wh] is to be understood as a single feature with a sub-specification. Furthermore, in undergoing the development in (15), *how* goes not only from semantic [wh] to purely formal syntactic [wh], but it must also lose lexical content (i.e. features), as the manner interpretation of resolute *how* is significantly bleached in - if not altogether absent from - complementiser *how*.

wh

(b) Stage 2: external merge of the *wh*-expression in spec-CP



(c) Stage 3: reanalysis of the *wh*-expression as a C head



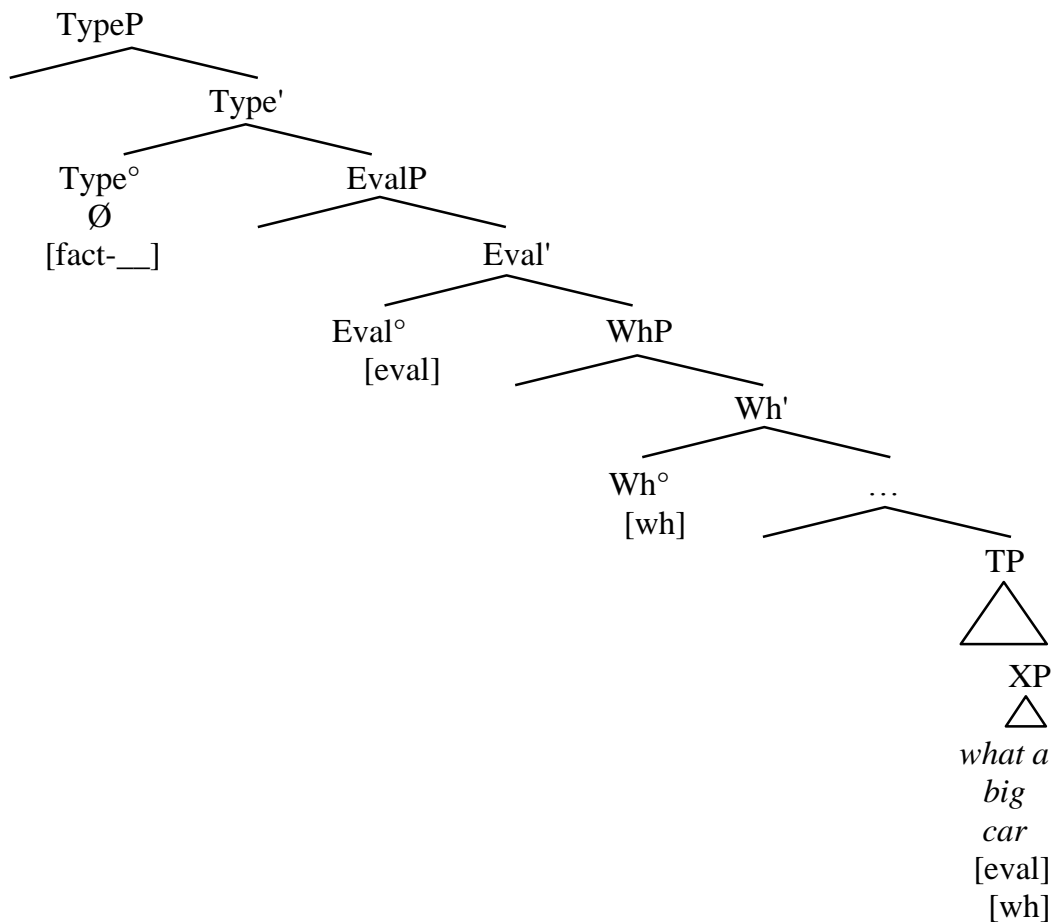
6.3.3.4 Derivation for an exclamative

An exclamative is taken to involve the same Type head as a resoluteive - it is of type [fact], and by virtue of being a null head, enters the derivation with a $[0_{wh}]$ sub-specification for *wh*. The derivation precedes differently in an exclamative to a resoluteive, however. This difference is to be attributed to the feature content of the *wh*-expressions involved. Empirically, it was demonstrated in Chapter 3 that a different range of *wh*-expressions is involved in exclamatives in comparison to in interrogatives (both true interrogatives and resoluteives). In the literature, it has already been proposed that the two sets of *wh*-expressions are distinguished in terms of their feature content. In particular, Zanuttini & Portner (2003: 68-70) suggest that exclamative-only *wh*-expressions involve an additional measure morpheme. Following the idea that it is exclamative *wh*-expressions which involve an extra feature, although departing from Zanuttini & Portner's (2003) account with regard to how this is characterised, I propose that an exclamative *wh*-expression such as *what a big car* is specified not only for [wh] but also for an evaluative feature [eval], as indicated in (16).⁴¹ As this is an interpretive feature - evaluativity is taken to be a component of

⁴¹ Other conceptions of the additional feature are conceivable. The crucial point for current purposes is the presence of an additional feature (and projection) in exclamatives, rather than its characterisation.

exclamativity (cf. Brandner 2010, Nouwen & Chernilovskaya 2013) - in line with the assumptions of the cartographic framework in which I situate my analysis, it will be required to enter into a criterial configuration, given (4). It is this factor which accounts for the derivational differences between exclamatives and both true interrogatives and resolutes. An exclamative will thus involve all three of the left peripheral projections under discussion here, as (16) illustrates.

(16) Projections involved in an exclamative

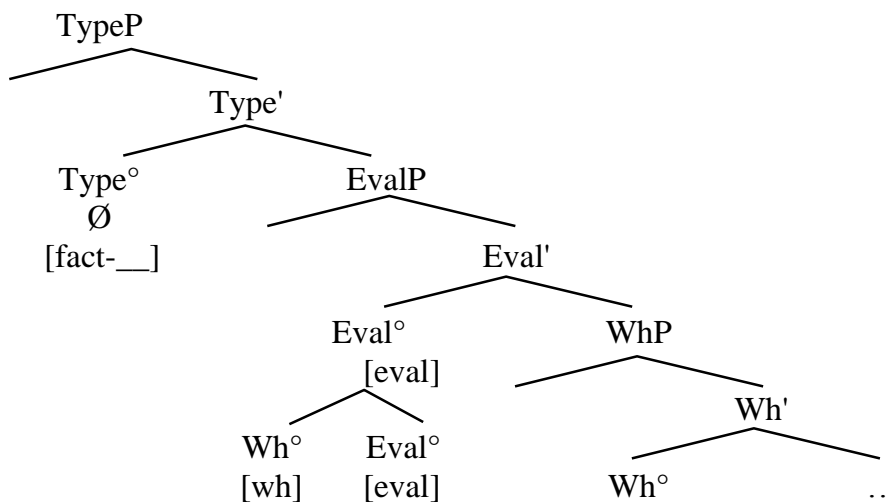


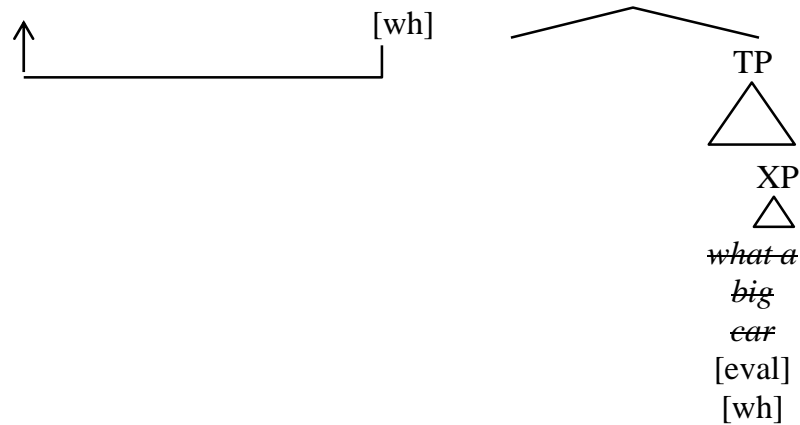
The exclamative *wh*-expression sits in its base position within spec-TP, bearing the features [wh] and [eval]. When WhP is merged, movement of the *wh*-expression to spec-WhP could be triggered in order to satisfy the criterial requirement for the *wh*-feature. However, were such a movement to take place, the exclamative *wh*-expression would then, following (7), be frozen in place and unable to undergo further movements.⁴² When Eval° is merged

⁴² The same problem would arise if in a derivation in which both Wh° and Eval° were present, the exclamative *wh*-phrase moved to spec-Wh before Eval° had been merged. That in the derivation in (16)-(18) the *wh*-expression raises only after head movement of Wh° to Eval° is not a question of Look Ahead ensuring the correct outcome, but of the fact that only the derivation which covers all those which could potentially be run is represented here.

higher, the exclamative *wh*-expression has no means of reaching spec-EvalP. As a result, its [eval] feature would not sit in the required criterial configuration, and the derivation would not converge. Were EvalP able to be merged without WhP, the [eval] feature would sit in the required criterial configuration, but the [wh] feature would not, and with the *wh*-expression frozen in place, there would be no further scope to satisfy this requirement. Were EvalP and WhP both taken to be absent, as in the derivation proposed above for a resolute in (14), last resort merge of the exclamative *wh*-phrase in spec-TypeP would not save the derivation as it does in a resolute, because the [eval] feature of the exclamative *wh*-expression would not sit in the required criterial configuration. If an exclamative *wh*-phrase bears both the criterial features [wh] and [eval], then the only possibility for the successful satisfaction of the requirements of both of these is if they are represented on a single head. This can be achieved without diverging from the cartographic *One Feature One Head* principle only by head movement. I suggest that the necessity of creating a configuration in which both interpretively-relevant features of an exclamative *wh*-expression are checked simultaneously motivates movement of the lower Wh° head to the higher Eval° head where it adjoins to create a single complex head which bears both [wh] and [eval], as represented in (17). Both features will be visible at the XP level, making EvalP a projection which is criterial both for [wh] and [eval].

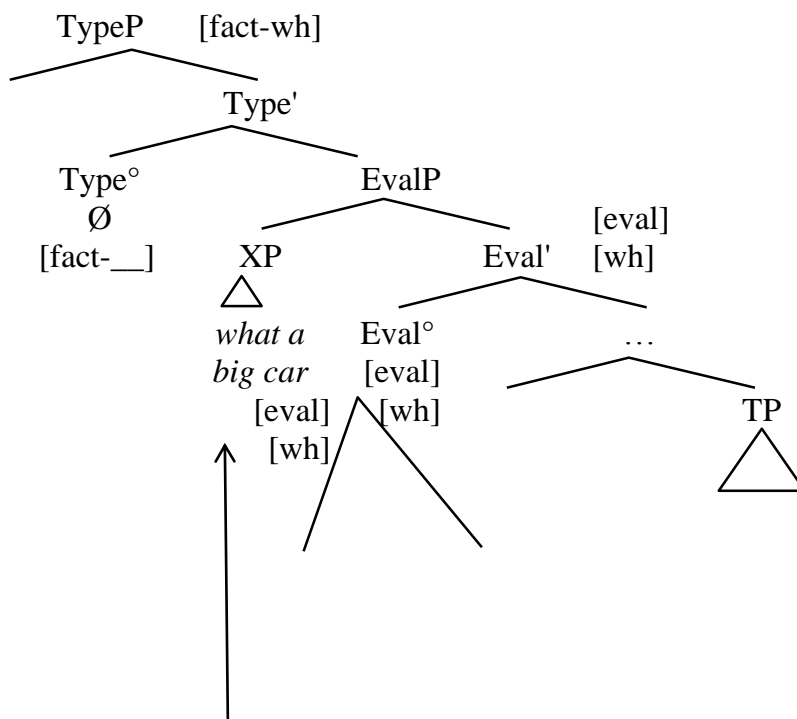
(17) Creation of a complex head





Having created a single complex head bearing both the criterial features [eval] and [wh], *wh*-movement of the exclamative *wh*-expression *what a big car* to spec-EvalP establishes the required criterial relations for both features. It is now unproblematic that the *wh*-expression is frozen in place, as it is not required to undergo any further *wh*-movement. The type head with [fact-___] specification is merged above EvalP and requires a *wh*-specification. Search yields a positive specification for *wh*, by virtue of the criterial *wh*-feature present on the Eval head. The derivation for an exclamative is thus more similar to that of a true interrogative (13) than that of a resolutive (14). Exclamatives do differ from true interrogatives in the specification of the Type head, and in the regard that the former but not the latter head movement is required to create a suitable head with the required features before the *wh*-expression can raise from within TP. From this point onwards, however, the derivation proceeds along the same lines: the *wh*-phrase raises from within the TP to the specifier of a projection where it can establish a criterial relation with the head. When the Type head, which lacks a *wh*-specification, searches, it locates the *wh*-criterial feature of this projection and is typed [wh], as in (18).

(18) Final configuration for an exclamative



		XP
Wh°	Eval°	△
[wh]	[eval]	what a
		big
		ear
		[eval]
		[wh]

As noted in section 6.3.1 above, there is theoretical motivation for the idea that the exclamative *wh*-phrase sits in a projection higher than WhP, given the existing cartographic work which shows that exclamative *wh*-phrases sit higher than (true) interrogative *wh*-phrases (cf. Munaro & Obenauer 2003). The idea that the landing site of the exclamative *wh*-phrase is lower than TypeP was motivated above on the theoretical grounds that the last resort option of merge in spec-Type is not available for exclamative *wh*-expressions, because even if this could satisfy the criterial requirements of the *wh*-feature, the [eval] feature of the *wh*-expression would not sit in the required criterial configuration. As TypeP is hypothesised to be the highest projection in the clausal left periphery, if exclamative *wh*-phrases are excluded from spec-TypeP, then we can conclude that the exclamative *wh*-expression must sit lower than Type°.

One might wonder, however, whether there is empirical motivation for the hierarchy postulated above in which the Type head is located higher than the position of the exclamative phrase. Attested examples such as those given in (19) provide exactly this. In these examples, both complementiser *how* and an exclamative *wh*-phrase are present in the left periphery of what interpretively seems to be an embedded exclamative clause. Although, to the extent of my knowledge, such structures have not previously been observed in the literature, they appear to be common in the informal, unedited English of blog posts and web-fora. When complementiser *how* and an exclamative *wh*-expression co-occur in the left periphery of a single clause, complementiser *how* must obligatorily precede the exclamative *wh*-expression, as in (19). The examples in (20), which differ from those in (19) only in the ordering of the *wh*-expressions, such that the exclamative *wh*-phrase precedes complementiser *how*, are ungrammatical. Evidence that in examples of the type in (19), the two *wh*-phrases do not form a single constituent are provided by attested examples such as (21), where an adverbial expression separates the two.⁴³ On the assumption that complementiser *how* is the realisation of Type°, as discussed in relation to (12) above, then

⁴³ Thanks to Lieven Danckaert [p.c] for suggesting this test. The context in which (21) occurs (a discussion thread about Facebook) strongly suggests that the adverbial expression *last week* in fact modifies the matrix predicate *realise*. Interesting though this is, I leave this point for future investigation.

we have empirical evidence that in examples such as (19), the exclamative *wh*-phrase sits lower than Type°. The default assumption is that the same applies even in simple exclamatives, where Type° has a null realisation, as represented in (22).

(19) a. We walked down to a small hill and went sledding. We had a blast! I forgot [**how what a simple thrill** it can be].⁴⁴

b. Recently he sent me a message on Facebook because I refused to talk to him over text message. He told me [**how what a wonderful girl** I was].⁴⁵

c. I clearly remember this one woman coming up to me after the group was leaving and told me [**how what a wonderful waitress** I was] as she pressed a crisp bill into my hand.⁴⁶

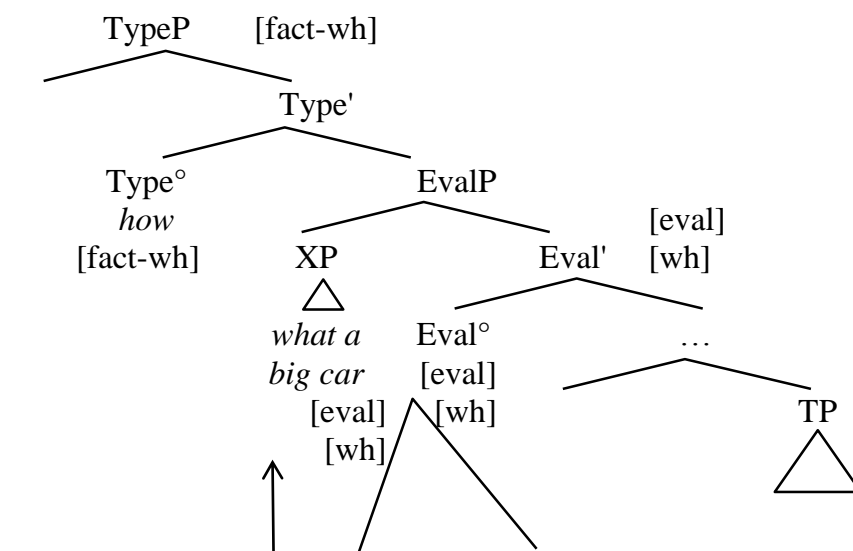
(20) a. * We walked down to a small hill and went sledding. We had a blast! I forgot [**what a simple thrill how** it can be].

b. * Recently he sent me a message on Facebook because I refused to talk to him over text message. He told me [**what a wonderful girl how** I was].

c. * I clearly remember this one woman coming up to me after the group was leaving and told me [**what a wonderful waitress how** I was] as she pressed a crisp bill into my hand.

(21) I give up with it, I realised [**how last week what a load of ****** it was].⁴⁷

(22) Structure of a complementiser *how*-exclamative



⁴⁴ From <http://www.thewellsfamilyblog.com/?p=2911>. Last accessed 14.08.2013.

⁴⁵ From <http://www.collegenet.com/elect/app/app?service=external/Forum&sp=35026>. Last accessed 14.08.2013.

⁴⁶ From <http://www.orangejuiceblog.com/2013/02/my-take-on-the-pastor-vs-the-applebees-waitress-debacle/>. Last accessed 14.08.2013.

⁴⁷ From <http://www.thestudentroom.co.uk/showthread.php?t=1156175&page=3>. Last accessed 19.09.2013.

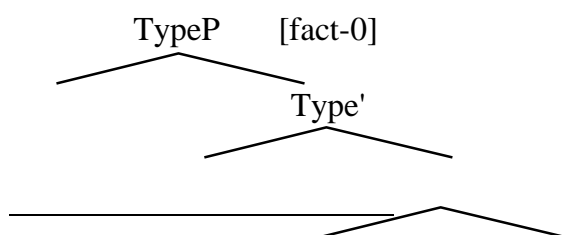
		XP
Wh°	Eval°	△
[wh]	[eval]	what a
		big
		car
		[eval]
		[wh]

I suggest that the specification of the Type° head is in fact the only way in which complementiser *how*-exclamatives such as those illustrated in (19) differ from standard embedded exclamatives such as (18) - the same process of head movement is required in both cases, in order to create a suitable criterial configuration for the exclamative *wh*-expression. Whereas the null Type head of a standard exclamative enters the derivation with the type-specification [fact-___], and only receives a *wh*-specification as a result of successful Search, a complementiser *how*-exclamative involves the overt Type head *how*, and thus enters the derivation already fully-specified as [fact-wh]. In the latter case then, the *wh*-criterial projection below TypeP is not required in order for the clause to be typed as [wh]. Its presence is compatible with this [wh] type-specification, however. In a clause with a Type head which enters the derivation with the specification [0_{wh}], this must be incompatible with the presence of a lower WhP, to avoid the undesirable situation in which *wh*-interrogative or exclamative clauses end up specified as [0_{wh}]. This entails postulating an interpretive mechanism which checks that there are no conflicting specifications within a clause. Such a mechanism is presumably operative when the completed clause is transferred to the semantic component (at the end of the phase, in Minimalist terminology).

In terms of the specification of Type°, there is no distinction between a CHC and a complementiser-*how* exclamative, hence these are subject to selection by exactly the same range of predicates. There is, however, an interpretive distinction between the two clauses, due to the additional structure present below the identical Type° head in the latter but not the former. Whilst for the purposes of selection it is only the information which is represented in Type° which is visible, when a clause is sent for interpretation (at the end of the CP phase) the whole structure comes under scrutiny. There the distinction between a derivation involving EvalP and one without it, between a formal syntactic *wh*-feature contributed by a complementiser head and a semantically *wh*-feature borne by a *wh*-operator is of relevance. In section 6.4 below, I discuss how the interpretations of the various FCCs arise, and consider the relation between the distributional types of clauses and the traditional notion of clause-type.

6.3.3.5 Derivation for factive and non-factive *that*-clauses

Having discussed the four kinds of finite *wh*-clause complements under consideration here, I now turn my attention to *that*-clause complements. The derivations for these are more straightforward than for many of the *wh*-clause considered above. I take *that* in both factive and non-factive *that*-clauses to be the realisation of Type^o.⁴⁸ As the overt realisation of the Type head, both factive *that* and non-factive *that* enter the derivation fully-specified: as [fact-0_{wh}] and [0_{fact}-0_{wh}] respectively. The feature specification of non-factive *that*, which bears the default non-factive, non-*wh* type, reflects its function as a simple subordinator.⁴⁹ The two clause types differ only in their Type specifications, as can be seen by comparing (23) and (24). There is no need to assume the presence of any extra structure, although this does not exclude the possibility that in certain cases additional projections e.g. TopP may be present, at least in non-factive clauses, an issue which I return to in section 6.3.5.2 below.

(23) Structure of a factive *that*-clause

⁴⁸ McCloskey (2006) discusses cases where *that* appears twice in introducing a single embedded clause, with the two occurrences obligatorily separated by an adjunct, as illustrated in (i). Without entering into a discussion as to the precise properties of the structures underlying such cases, I suggest that the higher occurrence of *that* is the realisation of the Type head, and bears the type specification, just as in (23) and (24) above. The second instance of *that* is a dummy element occupying the head projection of a lower projection in the clausal left periphery, the nature of which I do not make precise here. Such a proposal ties in with Rizzi's (1997) suggestion that a declarative complementiser can realise either the higher Force head or the lower Fin head. See Rizzi (2009), Radford (2011) and Haegeman (2012a: 83-87) for further discussion, and the latter for references to Romance recomplementation (Haegeman 2012a: 85).

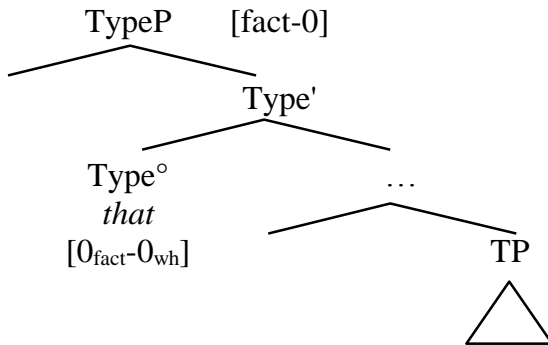
- (i) a. He thinks [**that** if you are in a bilingual classroom **that** you will not be encouraged to learn English].
[student essay (California)] [McCloskey (2006: 23), ex. (69b)]
b. I found [**that** when there were an equal number of men and women **that** the women tended to talk to
the women]. [student essay (California)] [McCloskey (2006: 23), ex. (69f)]

⁴⁹ As was noted in section 3.2, and illustrated with the examples repeated here in (i), certain declarative complements can be introduced by a null declarative complementiser instead of *that*. In a non-factive context such as (ia), the null complementiser can be taken to have the feature specification [0_{fact}-__] (as in true interrogatives), in a factive context such as (ib), it will rather have the specification [fact-__] (as in resolutes and exclamatives). In contrast to the case of Search discussed above, however, in this case the operation will not return a *wh*-value, as there is no criterial *wh*-feature in the derivation. The ultimate type specifications for the null non-factive and factive complementisers will be [0_{fact}-0_{wh}] and [fact-0_{wh}] respectively, as for non-factive and factive *that*. The distributional differences noted in the literature between declarative clauses introduced by an overt head, and those introduced by a phonologically null head in e.g. the ability of these clauses to be fronted are then to be attributed to another factor.

- (i) a. I think [(that) he's going to be late].
b. They know [(that) the meeting starts at 10].



(24) Structure of a non-factive *that*-clause



6.3.3.6 Summary

Table 9 provides an overview of the structures which were proposed above for the six FCCs, giving the feature specification of the Type head, the lexical item which realises this, and an indication of which other projections, of those which I deem relevant for the encoding of distributional type, are present. Recall that TypeP, as subordinating head, is taken to be present in all FCCs. It is clear from Table 10 that there are more logically possible combinations of type head specifications and projections than are realised by the six FCCs discussed here. In the following section, I consider potential explanations for the exclusion of these.

Table 10 - Overview of the structures proposed for FCCs

	TypeP			Eval P	Wh P
	initial feature specification of Type head	final feature specification of Type head	lexical item realising Type head		
CHC	$[\text{fact-wh}]$	$[\text{fact-wh}]$	how	n	n
exclamative	$[\text{fact- } ___]$	$[\text{fact-wh}]$	\emptyset	y	y
resolutive	$[\text{fact- } ___]$	$[\text{fact-wh}]$	\emptyset	n	n

true interrogative	[0 _{fact} -__]	[0 _{fact} -wh]	Ø	n	y
factive <i>that</i>-clause	[fact-0 _{wh}]	[fact-0 _{wh}]	that	n	n
non-factive <i>that</i>-clause	[0 _{fact} -0 _{wh}]	[0 _{fact} -0 _{wh}]	that	n	n

6.3.4 Non-attested combinations

Table 11 below provides an overview of all the possible combinations of TypeP, EvalP and WhP which could arise from the system I sketch above. This takes into account type specification not only for [fact] or [0_{fact}], [wh] or [0_{wh}], but also the possibility for the Type head either to enter the derivation already typed for wh, or to acquire this in the course of the derivation, with the potential resultant outcomes as either [wh] or [0_{wh}] in the latter case. It also assumes that whilst TypeP - and the specification of the clause as factive or non-factive that it entails - is obligatory, EvalP and WhP are optional, and projected only when required (much like Rizzi's TopP and FocP, for instance, see also Grimshaw (2005) for discussion of gaps in the functional sequence). Taking into account all possible combinations, 32 possibilities result, as illustrated in Table 11. These are numbered for ease of reference. 10 of these are attested, of which six are the FCCs discussed above. These are marked in bold-face, with a reference to the example number of the structure in the discussion above given. The other four attested cases, although not the focus of this work, were also mentioned in passing in the course of the discussion above, and a reference is similarly given to the relevant example or footnote. No further attention is paid to these. The remaining 22 unattested combinations are discussed below.

Table 11 - Overview of the possible combinations of Type specifications and projections

	TypeP		EvalP	WhP	attested?
	initial Type	final Type			
1.	[fact-wh]	[fact-wh]	y	y	y (complementiser <i>how</i> -exclamative (22))
2.	[fact-__]	[fact-wh]	y	y	y (exclamative (16)-(18))
3.	[fact-__]	[fact-0 _{wh}]	y	y	n
4.	[fact-0 _{wh}]	[fact-0 _{wh}]	y	y	n
5.	[fact-wh]	[fact-wh]	n	n	y (CHC (12))
6.	[fact-__]	[fact-0 _{wh}]	n	n	y (resolutive (14))
7.	[fact-__]	[fact-0 _{wh}]	n	n	y (null-headed factive (f.n. 49))
8.	[fact-0 _{wh}]	[fact-wh]	n	n	y (factive <i>that</i>-clause (23))

9.	[fact-wh]	[fact-wh]	y	n	n
10.	[fact-__]	[fact-wh]	y	n	n
11.	[fact-__]	[fact-0 _{wh}]	y	n	n
12.	[fact-0 _{wh}]	[fact-0 _{wh}]	y	n	n
13.	[fact-wh]	[fact-wh]	n	y	n
14.	[fact-__]	[fact-wh]	n	y	n
15.	[fact-__]	[fact-0 _{wh}]	n	y	n
16.	[fact-0 _{wh}]	[fact-0 _{wh}]	n	y	n
17.	[0 _{fact} -wh]	[0 _{fact} -wh]	y	y	n
18.	[0 _{fact} -__]	[0 _{fact} -wh]	y	y	n
19.	[0 _{fact} -__]	[0 _{fact} -0 _{wh}]	y	y	n
20.	[0 _{fact} -0 _{wh}]	[0 _{fact} -0 _{wh}]	y	y	n
21.	[0 _{fact} -wh]	[0 _{fact} -wh]	n	n	y (true interrogative <i>whether</i> -clause) (f.n.33)
22.	[0 _{fact} -__]	[0 _{fact} -wh]	n	n	n
23.	[0 _{fact} -__]	[0 _{fact} -0 _{wh}]	n	n	y (null-headed non-factive (f.n. 49))
24.	[0 _{fact} -0 _{wh}]	[0 _{fact} -0 _{wh}]	n	n	y (non-factive <i>that</i>-clause (24))
25.	[0 _{fact} -wh]	[0 _{fact} -wh]	y	n	n
26.	[0 _{fact} -__]	[0 _{fact} -wh]	y	n	n
27.	[0 _{fact} -__]	[0 _{fact} -0 _{wh}]	y	n	n
28.	[0 _{fact} -0 _{wh}]	[0 _{fact} -0 _{wh}]	y	n	n
29.	[0 _{fact} -wh]	[0 _{fact} -wh]	n	y	n
30.	[0 _{fact} -__]	[0 _{fact} -wh]	n	y	y (true interrogative (13))
31.	[0 _{fact} -__]	[0 _{fact} -0 _{wh}]	n	y	n
32.	[0 _{fact} -0 _{wh}]	[0 _{fact} -0 _{wh}]	n	y	n

The first 16 rows involve clauses with a [fact] specification. With both EvalP and WhP present (rows 1-4), only the cases in which Type^o has a final specification as [wh] (rows 1-2) are possible. This is easily accounted for in terms of the system developed here. A clause which involves WhP will always have a *wh* type-specification: in a derivation in which the Type head enters without any specification for *wh* and in which WhP is present, the Type head will locate WhP when it carries out Search, and hence will receive a *wh*-specification. Thus Row 3 represents an impossible combination: in a clause containing WhP, Search cannot yield [0_{wh}]. In the case of row 4, there is no Search, as the Type head enters the derivation already specified for (absence of) *wh*. A derivation involving this combination of components cannot converge, however, as the [0_{wh}] Type head clashes with the presence

of WhP lower in the clausal left periphery, and the interpretive component (discussed in section 6.3.3.4 above) will be unable to interpret the structure. I use a bold-face ‘n’ in the final column of Table 10 to indicate a structure for which not only is a realisation in English unattested, but for which this is in fact excluded on principled grounds. With EvalP and WhP absent, all possible *wh*-sub-specifications are possible (rows 5-8).

Whilst six of the first eight combinations involving a [fact] head are attested, none of the second eight are. In contrast to rows 3 and 4, at this point it is not clear whether the patterns in rows 9-12 are altogether impossible, or simply unattested (in English). These patterns all involve the presence of EvalP without WhP. Note that the same pattern under a [0_{fact}] head is similarly excluded (rows 25-28). This could be taken to suggest that there is a selectional restriction in place such that EvalP must obligatorily select WhP. At this point I have no explanation for why such a restriction should hold and I leave the question open. Given that there does not seem to be any principled reason for such a restriction, should it turn out to be the case that in English or in other languages, FCCs are attested for which there is evidence to suggest that EvalP is present unaccompanied by WhP, this would not endanger the overall proposal. Concerning the patterns in rows 13-16, although these are similarly unattested, we know that the presence of WhP without EvalP is in some cases possible, as this is exactly what we see in a true interrogative (row 30). Rows 15 and 16 are excluded on the same principled grounds as rows 3 and 4: the combination of a [0_{wh}] Type head and WhP within a single clause is impossible. There is no obvious explanation for the exclusion of rows 13 and 14. One possible explanation might be a restriction against a [fact] Type head selecting WhP directly, although again the reason for such a restriction remains obscure.

Turning my attention to the potential combinations involving a [0_{fact}] Type head, the clearest pattern which emerges is that in general fewer of these combinations are attested than those involving the [fact] head: 4 instead of 6. I have no explanation for this imbalance, and only further research will show whether it is an idiosyncrasy of English or indicative of a more general pattern. Certain of these are excluded on the same principled grounds already discussed: rows 19 and 20, 31 and 32 are out because it is impossible for a clause containing WhP to have a [0_{wh}] specification. Rows 17 and 18, and 21 cannot be excluded without two additional stipulations however. The former may be taken to suggest that there is a restriction preventing a [0_{fact}] Type° head from selecting Eval°. ⁵⁰ Although Rows 25-28

⁵⁰ On the assumption that such a restriction has to be formulated in terms of the [0_{fact}] head stipulating positively for selection of a particular head lower than EvalP, rather than stipulating negatively against the selection of Eval°, a potential problem arises. If the TopP which it was suggested above may optionally be present between TypeP and WhP sits higher than EvalP, then it is not clear how to exclude [0_{fact}] selecting Top° and Top° selecting Eval°.

were already noted as being excluded under the hypothesised restriction against EvalP occurring without WhP, this would give a second potential explanation for their exclusion. This leaves only rows 21 and 29 to be explained. For the latter, there seems to be no obvious explanation as to why this would be excluded. Potentially then, the structure is not ungrammatical, but simply not realised in English. We would therefore expect it to be found in other languages. Regarding the former, this involves the absence of WhP and a Type head which, although unspecified for *wh* when it enters the derivation, is ultimately specified as [wh] - the non-factive equivalent of a resolutive. We want to avoid true *wh*-interrogative expressions raising directly to spec-TypeP however, in order to be able to capture the differences between true interrogatives and resolitives which I relate to the differences in derivation. I therefore tentatively suggest that the specifier of [0_{fact}] heads, in contrast to [fact] heads cannot serve as the final landing site for an operator. The nature of such a restriction again remains to be understood.⁵¹

To conclude, whilst I do not offer a principled explanation for the exclusion of all the unattested patterns, we have seen that some of these fall out automatically of assumptions already made. For the remainder, further investigation is necessary in order to uncover the nature of these restrictions. Only empirical research will reveal which are generally impossible, and which happen to be excluded from English but which are attested in other languages. None of the patterns noted here endanger the general approach to encoding distributional type which was advocated above, however.

unless the latter is also stipulated to be impossible. The same difficulty does not arise concerning the proposal made above to the effect that there is a restriction which presents the [fact] Type head from selecting WhP directly, on the assumption that TopP can never occur in a [fact] clauses, for reasons discussed in 6.3.5.2 below.

⁵¹ An alternative to suggesting that a [fact] Type head has the option for its specifier position to serve as the final landing site for an operator whilst a [0_{fact}] Type head does not would be to suggest that for the former this is a requirement rather than an option. This could be encoded by positing that a [fact] Type head bears some kind of specialised Edge Feature, attracting some kind of operator. In resolutive, this would be the *wh*-expression as in the derivation in (14) above. In factive *that*-clauses, exclamatives and CHCs this would be a factive operator, the presence of which in the former two FCCs has independently been proposed. However, positing a factive operator creates more issues than it resolves. Empirically, it is not clear that there is motivation for the presence of a factive operator in these FCCs: semantically, the function of contributing factivity is now attributed to a functional head, Type°. Syntactically, the evidence given for the presence of such an operator (by Watanabe 1993, Zanuttini & Portner 2003) revolves around the absence of certain other left peripheral elements in factive clauses: fronted topics for instance. This is construed in terms of competition for the same specifier position, an explanation which is less obvious under a cartographic approach, where a factive operator would presumably target a different projection to a topicalised constituent. This being the case, there is scope to explain the factivity of such clauses without positing an operator (see section 6.3.5.2 below). Furthermore, from a theoretical point of view it is far from clear why a factive operator would be required in three types of factive clause (factive *that*-clauses, exclamatives and CHCs) but not the fourth (resolutive). For the moment then, I retain the stipulation that the specifier of a [fact] Type head can be the final landing site for an operator, unlike the specifier of a [0_{fact}] Type head, but without any requirement that the former must host an operator.

6.3.5 Loose ends

Before concluding the discussion of the syntactic encoding of distributional types and turning to their relation to clause-type, in this section I deal with two remaining questions which arise as a result of the proposal made above. The first of these concerns the island status of FCCs, and a potential correlation to the feature specification of the Type head. The second concerns what appears to be a conflict between the proposal made here, to the effect that factive clauses involve a positive specification for [fact] with a default [0_{fact}] specification arising in the absence of any such specification, and the claim made in some of the recent literature that factive *that*-clauses are in fact impoverished in relation to non-factive *that*-clauses. In section 6.5.5.2, I suggest that these two positions can be reconciled.

6.3.5.1 Feature specifications and the island status of finite clausal complements

In this sub-section I turn my attention to an aspect of the syntax of FCCs which has received considerable attention in the literature, and which has not yet been considered in the course of this section. This is the status of such clauses as islands for extraction. This was discussed from an empirical perspective in Chapter 3, where FCCs were shown to differ from each other with regard to the possibility for arguments and adjuncts to be extracted. At one extreme, non-factive *that*-clause complements allow both arguments and adjuncts to be extracted with no degradation in grammaticality when compared to the equivalent clause without extraction, as (60), repeated from section 3.2.2.2 (A) illustrates. Therefore they are not islands for extraction. At the other end of the spectrum are CHCs (and exclamatives), from which extraction of both arguments and adjuncts is impossible, as the ungrammaticality of the (b) and (c) examples in (26), repeated from section 4.5.2.1, illustrate. These are strong islands for extraction. Between these two extremes lie the weak islands: factive *that*-clauses, resolutives and interrogatives. Argument extraction from these clauses is possible, whereas adjunct extraction leads to ungrammaticality. This is illustrated for the former in (61), again repeated from section 3.2.2.2 (A).

- (25) a. I think [that she read the book about bears].
b. Which book did you think [that she read ~~which book~~]? [argument extraction]
c. When did you think [that she read the book ~~when~~]? [adjunct extraction]
- (26) a. They told me [**how** she buys junk food every day]. [Legate (2010: 126), ex. (13a)]
b. * Which food did they tell you [**how** she buys ~~which food~~ every day]? [argument extraction]
c. * Why did they tell you [**how** she buys junk food ~~why~~]? [adjunct extraction]

[adjunct extraction]

(27) a. I forgot [that she read the book about bears].

b. Which book did you forget [that she read ~~which book~~]?

[argument extraction]

(10) * When did you forget [that she read the book ~~when~~]?

[adjunct extraction]

Although an in-depth consideration of the technical implication of islands would take us too far from the current focus, I point to a potentially intriguing correlation between the Type specifications provided here and the island status of the clause in question. Table 12 indicates the Type specification and island status of each FCC under consideration here. There appears to be a general correlation between positive type specification and island strength. CHCs and exclamatives involve a Type head which is positively specified for both [fact] and [wh] and these are strong islands. Factive *that*-clauses and true interrogatives are positively specified for one aspect of the type specification alone - [fact] and [wh] respectively - and are weak islands. Non-factive *that*-clauses are the only kind of clause discussed here which involve a default specification for both (absence of) factivity and (absence of) [wh], and are similarly the only of the FCCs which are not islands at all. The idea would be that the more fully specified the Type head is, the harder that it is to extract past it. This could be attributed to an intervention effect (Rizzi 1990, Starke 2001) whether construed syntactically or semantically (see Szabolcsi & den Dikken (2002) for an overview of approaches to islands).

Table 12 - Type specification and island status for FCCs

	TypP			island status
	initial feature specification of Type head	final feature specification of Type head	lexical item realising Type head	
CHC	[fact-wh]	[fact-wh]	how	strong island
exclamative	[fact- ____]	[fact-wh]	Ø	strong island
resolutive	[fact- ____]	[fact-wh]	Ø	weak island
true interrogative	[0 _{fact} - ____]	[0 _{fact} -wh]	Ø	weak island
factive <i>that</i>-clause	[fact-0 _{wh}]	[fact-0 _{wh}]	that	weak island
non-factive <i>that</i>-clause	[0 _{fact} -0 _{wh}]	[0 _{fact} -0 _{wh}]	that	no island

There is an exception to the correlation between positive type specification and island strength, however, and this concerns resolutes. These are fully positively specified for both [fact] and [wh], and yet are weak islands like true interrogatives and factive *that*-clauses, rather than strong islands like exclamatives and CHCs. An alternative interpretation of the facts which might make resolutes look less exceptional would be if the strong island status of CHCs was related not simply to the fact that they have the type-specification [fact-wh], but to the fact that they already enter the derivation with a full and positive specification. This would then raise the question of why exclamatives are strong islands whilst resolutes are weak islands, given that they both enter the derivation positively specified for [fact] but with no sub-specification for [wh]. The presence of the [eval] feature present in the derivation for exclamatives but not resolutes could be appealed to, although to date there has been no indication that this is represented at the topmost level of the clause, which is presumably the projection of relevance with regard to extraction possibilities. I do not attempt to resolve these issues here, but leave this open as an interesting extension of the current account to be pursued in further research.

6.3.5.2 Factive clauses: less is more?

Factivity in my account is introduced by a Type head specified for the feature [fact]. I propose that there also exists a non-factive variant of the Type head, and this involves the default specification [0_{fact}]. This appears to put my account in line with traditional approaches to the encoding of factivity. In the regard that factive clauses involve ‘something extra’ in comparison to non-factive clause, it brings to mind Kiparsky & Kiparsky’s (1971) proposal, which, as discussed in section 5.3.1.2 and again briefly in section 6.2.1.3 above, proposes a two-way structural distinction between factive and non-factive *that*-clauses encoded by the presence of ‘fact’ at the top of the clause in the former but not the latter, even if ‘fact’ for Kiparsky & Kiparsky involves a null variant of the noun phrase *the fact*, rather than a feature on a head within the CP. In some regards there does still appear to be support for such a position, especially if island strength can be linked to type specification as hypothesised in the preceding sub-section. Yet this runs counter to a recent trend in the literature which views factive clauses as (structurally) impoverished in comparison to non-factive clauses: De Cuba (2007) proposes that non-factive *that*-clauses involve an assertion operator not present in factive *that*-clauses, for instance, the reverse of Watanabe’s (1993) earlier proposal that factive *that*-clauses involve a factive operator not present in non-factive *that*-clauses, and Haegeman (2006) posits that factive *that*-clauses involve a truncated clausal structure in comparison to non-factive *that*-clauses, in contrast to Kiparsky & Kiparsky’s (1971) original proposal that factive *that*-clauses involve an additional layer of structure.

I suggest that the two positions can in fact be reconciled if the presence of [fact] is taken to be responsible for the impoverishment of the clausal left periphery in other regards. The

idea that factive clauses are impoverished comes from the absence of certain syntactic processes which are available in non-factive *that*-clauses - the ability for main clause phenomena (MCP) to occur in non-factive but not factive *that*-clauses, for instance, as discussed in section 3.2.2.2 (B).⁵² This suggests absence (or unavailability) of structure taken to be lower than TypeP: TopP and FocP, for instance (see (11)). The evidence suggesting that factive clauses are enhanced in some regard, seems rather to concern the very top of the clause, which is presumably the crucial domain as far as extraction is concerned. These two indications need not conflict. I suggest that in a clause in which the Type head is specified as [fact], TopP and FocP cannot be projected in the clausal left periphery. In a clause with a Type head specified as [_{fact}] there is no such restriction - such projections need not be projected in every derivation, but they may be activated when required to host a topicalised or focussed constituent.⁵³ In this regard, ‘less is more’: absence of one particular feature allows for the presence of others.

A precedent for this idea can be found in Cruschina’s (2011: 172) view that ‘the activation of FocP varies according to the clause type’. In his discussion of the two focus positions available in Italian, one in the CP-periphery and one in the VP-periphery, Cruschina (2011: 172) proposes that ‘Italian generally activates the lower FocP, except when the sentence is marked with a [wh] feature’. Only in the absence of a [wh] feature is the lower Foc head able to bear a criterial focus feature’.⁵⁴ In my own proposal, only in the absence of a [fact] feature are TopP and FocP able to be projected within the clausal left periphery. These proposals also recall the idea found in Haegeman (2006), to the effect that absence of ForceP (in factive *that*-clauses, for instance) results in absence of TopP and FocP. Even if for Haegeman (2006) it is absence of a particular feature/projection which licenses the absence of other features/projections, whilst in my proposal and that made by Cruschina (2011) it is the presence of a feature which has this effect, a connection can nevertheless be seen to my own account in particular, given that it is the highest projection in both cases - ForceP for Haegeman (2006), or TypeP in my own account - which is responsible for the absence of lower structure. Neither Haegeman (2006) nor Cruschina (2011) makes explicit how

⁵² As was noted in the course of this earlier discussion of MCP in Chapter 3, section 3.2.2.2 (B), this is something of an over-simplification of the empirical facts, but to pursue the details would take us too far from our focus here. See Heycock (2006), Aelbrecht, Haegeman & Nye (2012) for more nuanced discussion.

⁵³ If this is the case, then the availability of clause-initial embedded-clause adjuncts in true interrogatives but not resolutes is to be attributed to the fact that the former are [_{fact}] whilst the latter are [fact], rather than to the different landing sites of the interrogative *wh*-expressions in these two cases, as was initially suggested in 6.3.3.3.

⁵⁴ Although Cruschina does not equate this with the complete absence of the lower FocP, it is not clear to me what kind of evidence is necessary to determine whether a projection which usually bears an interpretively-relevant criterial feature is altogether absent from the derivation, or present but lacking its usual feature. My proposal could alternatively be construed in Cruschina’s terms, in which case TopP and FocP are still present in derivations involving a [fact] type-specification, but they do not bear the respective [Top] and [Foc] features which they do in derivations where [fact] is not present. Either way, a similar intuition lies behind the two proposals.

precisely the absence/presence of a particular feature/projection ensures the absence of a lower feature/projection. When it comes to the apparent exclusion of MCP from presupposed/non-asserted environments, numerous accounts, both syntactic (from Emonds 1970/1976 onwards) and semantic (from Hooper & Thompson 1973 onwards) have been offered (see Aelbrecht, Haegeman & Nye (2012) for an overview) with no consensus reached. My own proposal is open to numerous implementations, and here I remain agnostic as to which is to be favoured.⁵⁵

6.3.6 Support from the literature

My claim that FCC selection makes reference not to the clause-type of an embedded clause but to its distributional type in terms of the properties sets my account apart from the mainstream approaches to FCC-selection which were discussed in Chapter 5 (Grimshaw 1979, Rizzi 1997, Ginzburg & Sag 2000). Nevertheless, there is in fact already some support in the existing (often lesser-known) literature for the view that the properties *wh* and/or factivity are relevant for the distribution of FCCs. Whilst none of these accounts can capture the full range of empirical patterns presented in Chapter 5, at least in spirit they are a source of inspiration for my own proposal.

6.3.6.1 Previous accounts in which factivity is relevant for FCC distribution

As noted previously, the majority of accounts which focus on factivity are concerned with the distinction only in so far as it applies to *that*-clause complements, and not to other FCCs.⁵⁶ One such account is that of Kiparsky & Kiparsky (1971), which was already presented in some detail in, section 5.3.1.2. Ginzburg & Sag (2000)'s proposal was similarly already discussed (in section 5.2.2.1), although their semantic type 'fact' does cover both factive *that*-clauses and exclamatives. Although differing greatly in theoretical approach to the present account, the idea that factivity is a property common to multiple FCCs and of relevance in determining the distribution of these is nevertheless supported by the current work. Where the present approach differs is in disputing that these FCCs are selected on the basis of factivity alone. As was noted in section 5.4.2, Ginzburg & Sag (2000: 70 f.n.19) do at least consider the possibility that predicates may be distinguished on the basis of 'whether

⁵⁵ Were factivity attributed to an operator (see discussion in footnote 51 above), this could be attributed to a syntactic intervention effect making the structure required to host fronted constituents inaccessible, rather than literal absence of structure, as discussed by Haegeman & Ürögdi (2010a,b) and Haegeman (2012a,b), albeit in terms of referentiality rather than factivity.

⁵⁶ Just as the majority of accounts which focus on (selection on the basis of) clause-type distinctions do not take factivity into consideration. One contribution this account makes is in bringing these two strings together.

they subcategorize for a [WH-] or [WH+] complementizer', even if they ultimately conclude that such morphosyntactic distinctions are 'superfluous' to their own system of ontological types.⁵⁷ In this sense, their position is almost the converse of Watanabe's (1993). Although the explicit claim Watanabe (1993: 526) makes in his account is that '[t]here are only two types of clauses to be selected by a verb, namely *wh*-clauses and non-*wh*-clauses', he later suggests that 'there is a sense in which the lower CP with a factive operator is selected by the higher verb' (Watanabe 1993: 529). For this reason, his account is discussed in more detail in sections 6.3.6.2 and 6.3.6.1 below.

6.3.6.2 Previous accounts in which *wh* is relevant for FCC distribution

Bearing in mind the discussion in section 6.2.2 above of Suñer's (1991) observation that the feature [wh] is proposed in the literature to serve two different purposes - sometimes as a formal syntactic feature triggering *wh*-movement, sometimes as a semantic feature contributing question interpretation - it is important to determine which conception of [wh] is intended in any account which proposes that a *wh*-feature is of relevance for the selection of FCCs. In accounts of the latter type, where the [wh] feature is equivalent to the Q-feature posited in other work (see section 2.5.3.2), then selection for *wh* is really selection for a particular (interrogative) clause-type. Such accounts are usually restricted empirically to two types of FCC, declaratives and interrogatives. As soon as the existence of additional types of *wh*-complement clauses other than interrogatives are recognised, then it becomes apparent that the [+/-wh] system alone is insufficient to capture the facts. Rizzi (1996) is a good case in point. Although in the main body of the text, the view he presents is of a binary distinction, such that 'the verb *wonder* selects an embedded question, hence a CP whose C° is marked [+wh]...*believe* selects a declarative, hence a CP whose head is [-wh]' (Rizzi 1996: 65), a later footnote makes clear that he is aware of the greater complexity of the facts. He correctly notes that a 'refinement of [+/-wh] feature system is needed (e.g. questions are [+wh][+Q], relatives and exclamatives are [+wh][-Q], etc)' (Rizzi 1996: 84-85 f.n.3). The [+wh] specification is no longer equated with question interpretation, and the conception of the *wh*-feature is no longer at odds with the position taken in this work.

As stated above, Watanabe's (1993: 526) explicit claim is that '[t]here are only two types of clauses to be selected by a verb, namely *wh*-clauses and non-*wh*-clauses', even if later in the same paper undermines his own claim that by appealing to the need for selection for the factive operator in factive *that*-clauses. Watanabe (1993: 526) claims that '[t]he former are characterized by the presence of a *wh*-phrase in Spec of the topmost CP. The latter are

⁵⁷ Not that they are not in principle opposed to making reference to such information in accounts of the selection, being of the view that 'to some extent, which type of account is to be preferred is a question of methodological predilection' (Ginzburg & Sag 2000: 70 f.n. 19).

characterized by empty Spec of the topmost CP'. Although this suggests a broad application to a range of *wh*-clause complements, the only *wh*-clauses which Watanabe illustrates in his account are interrogatives. Without further refinement, this predicts that all FCCs with a *wh*-phrase in spec-CP distribute alike, counter to fact (cf. true interrogatives and exclamatives). Conversely, CHCs do not involve a *wh*-phrase in spec-CP (as argued in section 4.5.1.3) and yet they are selected as *wh*-clauses. As an additional point, note that in contrast to Rizzi (1996) and Ginzburg & Sag (2000: 70 footnote 3), Watanabe talks in terms of the presence or absence of a *wh*-phrase (and thus feature), rather than a binary [+/-wh] feature. Although it is clear that as it stands Watanabe's account cannot capture the full range of empirical facts discussed here, it is nevertheless a source of inspiration for my own.

Emonds (1992) is the only account discussed here which is a direct reaction to - and against - Grimshaw's (1979) s-selectional account of finite clausal complement distribution, which was discussed at length in section 5.2.1.1. Of greatest relevance to current concerns is his focus on the distribution of exclamatives and interrogatives. Emonds (1992) appears to make a similar distinction to my own between 'clause-type' and 'distributional type', even if he does not cast it in such terms. Just as I did in section 3.2.3, Emonds (1992: 219) argues that, contrary to Grimshaw's (1979) claims, exclamatives and interrogatives (more specifically, resolutives) are syntactically distinguished. On the syntactic side of things, he notes that 'the *only* similarity between exclamatory and interrogative complements is that they both involve WH fronting, probably to a common landing site' (Emonds (1992: 220)).⁵⁸ Interpretively, he argues that 'systematic differences in semantics between indirect questions and exclamations warrant the conclusion that they belong to two different semantic types' (Emonds 1992: 220).⁵⁹ Yet when it comes to distribution, he claims that 'several other considerations deter us from believing that exclamatory clauses are an independent complement type and from basing a theory of complement selection on their properties' (Emonds 1992: 220). Evidence against viewing exclamatives as an 'independent complement type' is for example that '[n]o predicates obligatorily select them' (Emonds 1992: 220), a finding corroborated by my own empirical investigation, the results of which were presented and discussed in Chapter 5. My conclusion on this point was also the same: despite their unique pattern of syntactic and semantic behaviour, exclamatives do not constitute an independent distributional type.

Emonds (1992: 221) argues that the distributional patterns Grimshaw presents can in fact be accounted for with reference to a 'more restrictive set of (syntactic) features', namely

⁵⁸ Subsequent investigation in the cartographic framework in particular suggests that the *wh*-expressions in interrogatives and exclamatives do target distinct landing sites. See the discussion in Chapter 2, section 2.5.3.3.

⁵⁹ Emonds (1992: 221-222) terms these semantic types 'interrogative' and 'exclamative', although as discussed in Chapter 2, section 2.2.2, these labels are more usually applied to types of clause when syntactically defined.

with reference to whether or not a predicate (obligatorily or optionally) selects for *wh*-complements alone. Crucially he claims that ‘exclamatory clauses [...] like indirect questions, are +WH syntactically’ (Emonds 1992: 221), and that their distributional similarities fall out of the fact that they hold this feature in common. The system which he proposes is summarised in Table 13 below, which is based on Emonds’ (1992: 220) own example (3). The four CP-selecting predicate classes he identifies are based on predicates which obligatorily select for *wh*-complements (class (a)), predicates which obligatorily select for non-*wh* complements (class (c)), and two classes of predicates which optionally select for *wh*-complements (class (b) and class (d)). complements,

Table 13 - Emonds’ (1992) proposal for a revision of the distribution of interrogative and exclamatives proposed by Grimshaw (1979)

	Emonds’ features	Grimshaw’s features	Example verbs
a	[+WH]	+Q, -E	<i>inquire, wonder, evaluate, describe</i>
b	[(+WH)]	(+Q), (+E)	<i>discover, imagine</i>
c	[-WH]	-Q, -E	<i>wish, hope, believe, assume</i>
d	[(+WH)]	-Q, (+E)	<i>surprised, exclaim, love, deplore</i>

Even with appeal to an interpretive rule to explain why his [+WH] class of predicates, class (a), admits only exclamative complements, whilst his optionally [+WH] classes (b) and (d) permit exclamative, the empirical coverage of Emonds (1992) is still more restricted than in my own account as, like Grimshaw (1979), Emonds does not distinguish between true interrogative and resolute complements, nor between factive and non-factive *that*-clauses. The fact that he takes into account a more restricted range of FCCs explains his claim that ‘there are only four ways to select finite complement clauses’ (Emonds 1992: 220). He himself adds as a caveat ‘[a]t least, these are the only classes brought up by Grimshaw’ (Emonds 1992: 221). Furthermore, some of the patterns he notes have been shown in this work to be factually inaccurate: *surprised* and *exclaim*, in Emonds’ class (d), permit resolute as well as exclamative complements, as discussed in section 3.2.3.4. *Describe* does permit exclamative complements, contrary to Emonds’ classification of this predicate in his class (a), as was illustrated in sections 5.2 and 5.3.2.4.6. However, what is of great interest in Emonds’ (1992) account in relation to my own proposal is not the details of the implementation, as much as the idea that FCC distribution can be accounted for on the basis of ‘distributional types’, defined on the basis of a very limited range of syntactic features.

6.3.6.3 Previous accounts in which both *wh* and factivity are relevant for FCC distribution

Munsat (1986: 191), building on Bresnan (1972), posits that matrix predicates select for their finite complements on the basis of one of three different complementisers which may be present in the underlying syntax. These he dubs *wh-Q*, *that*, and *wh-that*. That he deems *wh* of relevance is immediately apparent from the contrast between his *that* and *wh-that* complementisers. However, these two deep structure complementisers are also distinguished by ‘the hypothesis that *wh-that* marks a factive construction (i.e., carries a truth implication) whereas *that* simpliciter in deep structure does not mark a factive construction [footnote omitted]’ (Munsat 1986: 206). What’s more, the factivity of a clause introduced by *wh-that* is explicitly associated to the complementiser itself: ‘*wh-that* carries a truth implication, whereas the deep structure *that* does not’ (Munsat 1986: 206). Given that matrix predicates are assumed to select their complements on the basis of these deep structure complementisers, both *wh* and factivity play a part in the distribution of FCCs in Munsat’s account, just as in the present work.

The kinds of FCC which Munsat considers in his account are true interrogatives, resolutes, and factive and non-factive *that*-clauses. He claims that the complementisers *wh-Q* and *that* each underlie only a single type of complement clause, true interrogatives in the former case, non-factive *that*-clauses in the latter. Selection for true interrogatives thus takes place on the basis of a Q-morpheme. However, underlying both resolutes and factive *that*-clauses is an abstract *wh-that* complementiser. The empirical predictions this makes - that resolutes and factive *that*-clauses never diverge in distribution - has already been shown to be incorrect in the course of this present work (see Chapter 5). Nevertheless, the spirit of the approach - positing a smaller number of syntactically-encoded distributional types than there are clause-types in order to capture distributional similarities - is very much in line with the current proposal.⁶⁰ My own account can be considered a refinement of Munsat’s in the sense that *wh* and factivity are the only properties made use of in accounting for the distribution of English FCCs.

⁶⁰ Based on the belief that ‘*factives only take free relative constructions* [his emphasis]’ (Munsat 1986: 211), he introduces a distinction between the *wh*-complements to the true factives and the *wh*-complements to the semi-factives. A different analysis for factive *that*-clause complements is also offered in the two cases. For the *that*-clause complements to factives, he appeals to the presence of a null noun, along much the same lines as Kiparsky & Kiparsky (1971). My own account shows that it is possible to capture not only the distribution but also certain key syntactic and interpretive properties of FCCs whilst taking a unified approach to resolute and factive *that*-clause complements under a range of different predicates.

6.3.7 Conclusions

In the course of this section, I have offered an implementation for the [+/-factive, +/-wh] distributional types which were established at the end of Chapter 5 on the basis of a detailed consideration of the distribution of the finite clausal complements of English. The merits of the particular implementation I offer have been indicated, and the questions which it raises for future investigation noted. As this is a first exploration of new territory, the picture presented here is inevitably not the end of the story. It is the first step in the direction of a revised approach to the encoding of distributionally-relevant information in FCCs, the necessity of which was made clear in Chapter 5. Any alternative approach to the encoding of the selectionally-relevant properties of FCCs, whilst potentially differing in theoretical implementation, will nevertheless need to account for these same empirical facts.

Any such account involves a balancing act when it comes to capturing similarities in distribution between CHCs, exclamatives and resolutives, without losing the ability to explain differences in their interpretation and internal syntax, and conversely to capturing the distinct distributions of factive *that*-clauses and CHCs, without losing sight of their interpretive and syntactic commonalities. The derivations offered above were driven by the goal of encoding distributionally-relevant information in such a way as to ensure that it is available for selection by a higher predicate. Whilst certain key internal syntactic properties of the FCCs are also captured, I do not claim that my proposal at this point can account for all the subtle syntactic properties of the various FCCs which were catalogued in Chapters 3 and 4. The goal was not to offer a complete cartography of the left periphery of each of these kinds of complement clause - which would be no small undertaking in its own right - but rather to explore the challenges of encoding distributional type within a cartographic framework, when the evidence suggests that this is not a syntactic primitive. In the following section, I show that the distinct interpretations which characterise each FCC fall out naturally from the above proposal, without the need for any further modifications.

6.4 Consequences for clause-type

The structure for the clausal left periphery which I assume throughout section 6.3 differs from that posited by Rizzi (1997, 2012) not only in the regard that clause-type (declarative interrogative, exclamative...) is not represented in the highest projection in the clausal periphery as it is not deemed of relevance for selection, but also in terms of the fact that clause-type is not encoded as a primitive anywhere in the clause. The latter is not a necessary consequence of the former, however. There are numerous properties with

interpretive import which are encoded in projections in the clausal left periphery and yet which do not influence the range of predicates under which a complement can occur: topicalised and focused constituents, and fronted adverbial modifiers, for instance. There seems to be no principled reason why clause-type could not be another such property. The position that I pursue however is the stronger stance that FCCs are not selected on the basis of clause-type because this information is not encoded as a primitive in the clausal left periphery at all. This is an independent development of the proposal made in section 6.4, the merits of which would not be undermined by counter-evidence to this extension

If clause-type is not encoded as a primitive, then how does it arise? I suggest, following proposals made by Zanuttini & Portner (2003), Lohnstein (2007) and Isac (2012), that it arises compositionally (see section 2.5.3 where Zanuttini & Portner (2003) was first discussed, in the context of an overview of the range of approaches taken to the encoding of clause-types). As Isac (2012: 89) puts it, the hypothesis is that clause-type, or ‘Force’ in her terms, ‘is not encoded in the syntax as a syntactic feature, but is instead a derivative notion which results from the semantic composition of *more primitive components*, which are in turn in a one-to-one correspondence with more atomic syntactic features [her emphasis]’. Particular (combinations of) syntactic components present in the derivation give rise to clauses with different patterns of syntactic behaviour and, when semantics is read off the syntax (see discussion of the syntax-semantics mapping in section 2.5.1), distinct interpretations. Although certain components may occur in multiple kinds of clause, each clause-type has its own particular combination and/or configuration of properties, and thus its own unique profile. My own account follows Lohnstein’s (2007: 63) account in claiming that ‘sentential force is derivable [...] without the need of [sic] a syntactic projection *ForceP* [emphasis in original]’. Whilst Lohnstein’s (2007) work is more overtly cartographic than Zanuttini & Portner’s (2003) in terms of the syntactic structures assumed, the implementation I favour for clause-types is nevertheless closer to that of the latter authors. As Isac (2012) concentrates on imperatives, the details of her proposal are of less immediate relevance, given that imperatives do not seem able to be embedded (see section 2.3). Thus although Zanuttini & Portner (2003), Lohnstein (2007) and Isac (2012) all focus on the root domain, the former proposal is the most directly applicable to the FCCs of interest here, and will be the focus of the following discussion.

Zanuttini & Portner (2003: 40) ‘identify two syntactic properties that define the class of exclamatives’. These are the presence of ‘a *wh* operator-variable structure’ and of an abstract morpheme FACT in the CP domain’ (Zanuttini & Portner 2003: 40). The significance of these two elements is that ‘they contribute the two crucial components of meaning to the denotation’: that ‘[e]xclamatives denote a set of alternative propositions’ and that ‘[e]xclamatives are factive, that is, their propositional content is presupposed’ (Zanuttini & Portner 2003: 40). They propose that interrogatives similarly involve a *wh*

operator-variable structure but not the fact morpheme posited for exclamatives. As exclamatives and interrogatives ‘both denote sets of propositions, their syntax is alike in respects that give rise to this aspect of their meanings. The need to host the abstract morpheme expressing factivity explains certain subtle differences between exclamatives and interrogatives’ (Zanuttini & Portner 2003: 40).

This approach sits very well with the derivations given here. Under the derivation which I propose, exclamatives involve both a *wh*-operator-variable relation, established by *wh*-movement of the exclamative *wh*-expression to the specifier of a criterial *wh*-projection from its base position within TP, and a factive morpheme, albeit if this is encoded as a functional head in my account, rather than as a factive operator as in Zanuttini & Portner’s account. The two syntactic components which Zanuttini & Portner posit as necessary for exclamative interpretation are thus both present. True interrogative complements are distinguished from exclamatives by the absence of the factive morpheme (in my terms, by the presence a [0_{fact}] Type head, in Zanuttini & Portner’s by the absence of a factive operator), although they similarly involve a *wh*-operator-variable relation, established by movement of an interrogative *wh*-expression from its base position within TP to the specifier of a *wh*-criterial head. Thus far, Zanuttini & Portner’s account can be applied more or less directly to the derivations which I provide in order to explain how the particular interpretive flavour of each arises. However, as they discuss only exclamatives and interrogatives, in its current form it cannot account for the interpretation of the other four FCCs which I discuss. Most problematically, Zanuttini & Portner do not make a distinction between resolutes and true interrogatives. Given my claim that resolutes also involve a factive morpheme (in the form of a [fact] Type head), and a *wh*-operator-variable relation, on the assumptions presently made, they would be expected to receive exclamative interpretation, counter to fact. For this reason, I depart from Zanuttini & Portner’s account in proposing that exclamatives additionally involve an evaluative component. This is the natural candidate for a syntactically encoded property which contributes to distinguishing exclamatives and resolutes interpretively, given that I have already hypothesised that EvalP is present in the derivation of exclamatives.

With this additional assumption in place, the interpretation of the other three FCCs can be explained without any further additions to Zanuttini & Portner’s system. CHCs, like resolutes and exclamatives, contain a factive morpheme. They do not involve a relation between a *wh*-operator and its variable, however. What distinguishes them then from factive *that*-clauses, which similarly involve [fact] but not a *wh*-operator-variable relation? I suggest that the interpretive mechanism is sensitive not only to the presence of *wh*-operator-

variable relations, but also to the mere presence of a *wh*-expression.⁶¹ This is what distinguishes CHCs from factive *that*-clauses then: they may not involve a *wh*-operator-variable relation, but they do nevertheless contain a *wh*-expression. As a consequence, they differ in the specification of the Type head: complementiser *how* enters the derivation already specified as [fact-wh]. Factive *that* enters the derivation specified as [fact-0_{wh}]. The remaining type of FCC under consideration, non-factive *that*-clauses, are characterised by the absence of any of the syntactic components which contribute to giving the readings discussed to date - they are in some sense the default. Table 14 provides a summary of what I, drawing on and extending Zanuttini & Portner's proposal, consider to be the relevant syntactic components which are in combination responsible for the particular interpretation that a particular FCC receives. Note that each of the six FCCs involves a unique combination of properties, with exclamatives the most highly specified, non-factive *that*-clauses the least. CHCs are the only case where *wh* is involved but without a *wh*-operator-variable relation (the opposite state of affairs is impossible: for a clause to involve a *wh*-operator-variable relation, there must be a *wh*-expression present).

Table 14 - Clause-type components for the 6 FCCs under consideration

	factivity	<i>wh</i>		evaluative expression
		<i>wh</i> -expression	<i>wh</i> -operator-variable relation	
exclamative	√	√	√	√
resolutive	√	√	√	x
interrogative	x	√	√	x
CHC	√	√	x	x

⁶¹ Zanuttini & Portner (2003) do not discuss the nature or the timing of the interpretive mechanism which computes clausal interpretation on the basis of the syntactic components. I do not pursue this issue, as it is beyond the scope of the current work.

factive <i>that</i>-clause	√	x	x	x
non-factive <i>that</i>-clause	x	x	x	x

An unresolved question which arises from this system concerns the property of evaluativity. Whereas the properties of being factive or being *wh*/involving a *wh*-operator recur in various clause types, evaluativity is involved only in exclamatives. Whilst it is not inconceivable that certain syntactic components are specialised for occurrence in only one type of clause, the picture otherwise suggested is of a finite pool of syntactic components from which clause-types are built, with the particular interpretation which results being determined by the particular combination of these present. We would like to know whether, in English or in other languages, there are also clauses which are evaluative but non-factive, for instance, or evaluative but non-*wh*. If this turns out not to be the case, we may wonder whether evaluativity is the correct characterisation of the property which distinguishes exclamatives from the other five FCCs under consideration here. This is a question for future research.

Although Zanuttini & Portner (2003) account is not overtly cartographic, they nevertheless claim ‘that Rizzi’s view is compatible with what we have found here’ (Zanuttini & Portner (2003: 72)). Cartography and a compositional approach to clause-type can nevertheless successfully be combined, as the work of Lohnstein (2007) and the present account show. Furthermore, there are empirical gains in doing so. Applying a Zanuttini & Portner-like approach to clause-type to the derivations independently proposed above as a means to encode distributional types, we get an explanation of how the distinct interpretations associated with the various FCCs arise ‘for free’, so to speak. Cartography involves precisely this type of exploration as to which interpretive components should be encoded as primitives in the clausal left periphery and which not. My claim is that there are good grounds for viewing clause-type as one property which is not. The two motivations for positing projections such as Int(errogative)P and Excl(amative)P in the clausal left periphery are firstly that such information must be represented there for the purposes of selection by a higher predicate, and secondly that this is necessary for the correct interpretation of the clause in question. The discussion in Chapter 5 made clear that the former of these arguments does not in fact hold. The system outlined in Table 13 of this section suggests that Zanuttini & Portner’s (2003) ideas can be extended to a broader range of clause-types, and hence that the interpretation received by different clauses can be explained without reference to IntP or ExclP. In a departure from Zanuttini & Portner (2003), the properties which I take to be the relevant components contributing compositionally to clause-type are encoded syntactically in contentful left peripheral projections: TypeP, EvalP, WhP. In a sense then, clause-type is still contributed by functional projections, albeit by particular combinations of distinct projections, each contributing a particular syntactic and interpretive component, rather than as a primitive

from a single projection. In decomposing Int^o and Excl^o into even more basic features which recur in various clause-types, my proposal is arguably in fact even more cartographic.

What is striking to note is the similarity between the syntactic components which Zanuttini & Portner (2003) propose are essential for determining exclamative and interrogative interpretation, adopted and adapted in the account which I give here (summarised in Table 13 above), and the characterisation and syntactic implementation of distributional types arrived at independently in this work. Zanuttini & Portner (2003) state that a *wh*-operator-variable relation and a factive morpheme are crucial for exclamative interpretation, I demonstrate that exclamatives are selected as [fact-wh] clauses. Zanuttini & Portner (2003) claim that interrogatives similarly involve a *wh*-operator-variable relation, but lack the factive morpheme, I show that the distribution of interrogatives is a reflex of their [0_{fact}-wh] status. The similarities between the components of clause-type and the specifications for distributional type are made clear in Table 15 below. What this similarity suggests is that ‘distributional type’ may not in fact be divorced from ‘clause-type’ altogether, albeit if the connection between the two is much less direct than is proposed by Grimshaw (1979) or Rizzi (1997). There is certainly no one-to-one correlation between the two ‘types’: exclamative interpretation involves an extra syntactically-encoded evaluative component which is not of relevance for distribution. Similarly, whilst the *wh*-operator-variable relation is crucial for exclamative interpretation, denoting a set of propositions, for the purposes of selection it is only the fact that exclamatives are *wh*-clauses that is of relevance. Whether this *wh*-specification is contributed by a complementiser head as in CHCs or a *wh*-operator as in exclamatives makes no difference when it comes to distribution, yet crucially accounts for interpretive and internal syntactic differences between the clauses. I tentatively suggest that distributional type makes reference to a sub-set of the properties which are of relevance in composing clause-type. This hypothesis requires corroboration in future work on the basis of an even greater number of FCCs, in a broader range of languages.

Table 15 - Clause-type components and distributional types for the 6 FCCs under consideration

	factivity	<i>wh</i>		evaluative expression	distributional type
		<i>wh</i> -expression	<i>wh</i> -operator-variable relation		
exclamative	√	√	√	√	[fact-wh]
resolutive	√	√	√	x	[fact-wh]
interrogative	x	√	√	x	[0 _{fact} -wh]
CHC	√	√	x	x	[fact-wh]
factive <i>that</i>-clause	√	x	x	x	[fact-0 _{wh}]

non-factive <i>that</i>- clause	x	x	x	x	$[0_{\text{fact}} - 0_{\text{wh}}]$
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6.5 Conclusions

This chapter began where Chapter 5 left off: with a revised characterisation of the properties of English FCCs which are of relevance in determining their distribution. This chapter offered a theoretical implementation of the [+/-wh, +/-factive] distributional types seen to be of relevance for the selection of FCCs by matrix predicates. My account was developed within the framework of cartography. It is the first proposal within the framework to challenge the idea that FCC-selection is conducted on the basis of clause-type, although support for the view that the properties *wh* and factivity are relevant in this regard was provided from other literature. In technical terms, it is not straightforward to implement selection on the basis of a non-primitive property within cartography. The proposal I offer therefore contributes not only to capturing the empirical facts documented in Chapter 5, but also to the development of cartographic theory.

A second element of this chapter was a consideration of the consequences for clause-type, once this is no longer deemed of relevance for the distribution of FCCs. it was demonstrated that the particular proposal for the encoding of distributional types favoured here sits well with the compositional view of clause-types put forward by Zanuttini & Portner (2003). The conclusion reached was that distributional types may in fact be connected to clause-types, albeit indirectly: the former involve a sub-set of the syntactic components required for the latter. This brings together the two strands which have been pursued in this work - the identification of distinct FCCs (Chapters 3 and 4) and the patterns in the distribution of FCCs (Chapter 5) - in a novel and potentially enlightening way. Given that the detailed empirical study of the properties and distribution of FCCs conducted in this work has proved fruitful also at a theoretical level, in the following - and final - chapter, I indicate some possible directions for future research which build on these findings.

Chapter 7 Conclusions and perspectives for further research

7.1 Conclusions

The current work challenges two established empirical ideas concerning English finite clausal complements. The first is that the typical distinction made between declarative, interrogative and exclamative embedded clauses is sufficient to do justice to the internal syntactic and interpretive distinctions which hold between FCCs. Building on existing works which take a more nuanced approach to distinguishing FCCs, a typology of six English embedded clause-types (factive *that*-clauses, non-factive *that*-clauses, true interrogatives, resolutive, exclamatives and complementiser *how*-clauses) was established. Each of these six FCCs was shown to qualify as a member of the typology on the basis of its unique ‘fingerprint’: a particular distinctive combination of syntactic and interpretive properties displayed by no other FCC. The second empirical idea challenged is that the distribution of FCCs under CP-selecting predicates is a reflection of their clause-type. When the range of FCCs under consideration is expanded to take into account the six embedded clause-types established here, what emerged from a detailed investigation of their distribution under a broad range of CP-selecting predicates drawn from the literature on FCC-selection is the striking pattern that three of the clause-types identified - resolutive, exclamatives and CHCs - invariably distribute alike.

The theoretical significance of this is that it runs counter to the standard view that FCCs are selected by a matrix predicate on the basis of their clause-type. When more nuanced distinctions are made between clause-types, it becomes clear that what might be taken to be the ‘declarative’ complements (factive and non-factive *that*-clauses, CHCs) differ in distribution from one another, as do the ‘interrogative’ complements (resolutive and true interrogatives), whilst the FCCs which do distribute alike - resolutive, exclamatives and CHCs - cannot conceivably be taken to be an instance of a single clause-type. Existing mainstream accounts, which posit FCC-selection on the basis of (syntactically or

semantically defined) clause-type, are shown to be unable to account parsimoniously for the broader range of data presented here. The need for a new approach is thus clear. I show that in order for the common distribution of resolutes, exclamatives and CHCs to be captured, a common element to these FCCs must be identified, on the basis of which they are selected by matrix predicates. Drawing on the empirical facts, and some lesser-known literature, I establish an inventory of ‘distributional types’ for the FCCs of English. Concretely, my proposal is that the only properties of relevance for the distribution of an FCC is its (positive or negative) specification for the features *wh* and factivity. Resolutes, exclamatives and CHCs are unique amongst FCCs in being clauses both factive- and *wh*-clauses, and thus have a shared distributional type specification, and thus a common distribution, despite qualifying as independent clause-types on the basis of their internal syntactic and interpretive properties. Thus whilst an independent clause-type may have a distinct distributional type, as is the case for true interrogatives, factive and non-factive *that*-clauses, this is not necessarily the case. The success of such an approach in capturing the empirical facts argues in its favour.

On the basis of this novel conception of the nature of the properties of the complement which determine its distribution, it becomes clear that a rethinking of the encoding of selectionally-relevant information is required for FCCs. The information which needs to be represented in an FCC in such a way as to be locally-accessible to a selecting predicate is distributional type, not clause-type. My syntactic implementation of this proposal draws on the fact that cartographic work has already been shown to offer scope for a more nuanced approach to clause-types. It nevertheless raises questions for the framework, considered in more detail in section 7.2.1 below, concerning the mechanisms for the representation of a complex, non-primitive distributional type on a single head, and the transmission of information within the clausal left periphery, such that features encoded in a lower projection are nevertheless visible in the top-most projection for selection by a higher predicate. The approach to the encoding of distributional types which I favour is shown to sit well with a conception of clause-type as arising compositionally. There is overlap between the elements which I identify as contributing the distributional type of an FCC, and the syntactic components which have independently been proposed as components of clause-type. What is visible to a selecting predicate is not the full rich specification necessary for creating a unique clause-type, but a restricted range of information which may reflect components held in common by FCCs of different clause types. Whilst it is crucial to distinguish distributional type from clause type is crucial in order to account for the distributional facts, the two concepts do not appear to be divorced from one another. This work contributes thus not only to a sharpening of the empirical picture concerning the FCCs of English, but also to our theoretical understanding of the syntactic encoding of properties relevant to the distribution and interpretation of such clauses.

7.2 Perspectives for further research

This work has brought us to a better understanding of the factors which are relevant for the selection of English FCCs. The findings also raise questions concerning the implications, and potential for extension, of the current proposal to capture an even broader range of data. Here I list some of the questions which arise, and topics which would repay further research, although those listed here are by no means exhaustive. In section 7.2.1 I consider some of the theoretical questions which arise as a result of the cartographic account I offer in Chapter 6. In section 7.2.2 I note possible empirical extensions of the current account. For ease of exposition, the latter are loosely grouped into three sections, although there is overlap. Section 7.2.2 looks at possible extensions and refinements which could be made concerning the embedded domain, whilst section 7.2.3 considers the scope for application of the clause-type distinction to root clauses. Section 7.2.4 shifts the focus to the relation that holds between matrix predicates and finite clausal complements.

7.2.1 Theoretical questions from a cartographic account

As was demonstrated in Chapter 6, casting the proposal made in this work in cartographic terms allows us to capture the empirical facts. However, it also highlighted some open questions concerning the cartographic framework, which I note here as worthy of further attention. The first concerns the *One Feature One Head* principle and, specifically, the extent to which my proposal that information concerning both the factive and *wh* status of the clause is represented on the Type° head represents a departure from this. Maintaining the view that selection is strictly local, it is difficult to see how the empirical conclusion that FCC-selection is conducted on the basis of factivity and *wh* simultaneously can be captured in cartography without some means of representing both these properties within a single projection. The second concerns the operation *Search*, and how it relates to the similar operations proposed by Moscati (2006) and Authier (2013). Although Force° is the only head which Rizzi (2012) explicitly identifies as conducting *Search*, one wonders whether the requirement of a criterial head to locate a matching feature could not be cast in the similar terms. The third relates to the fact that my proposal encapsulates the view that only those projections which are active in a derivation are present, in line with Rizzi (1997), contra Cinque (1999). The questions arises as to whether this represents a systematic differences between the CP and IP domains and, if so, what the source of this distinction is.

7.2.2 Empirical questions (i): the embedded domain

Despite - or perhaps rather, precisely because of - the fine-grained approach taken to FCCs in the current work - numerous questions remain concerning this domain.

7.2.2.1 Extension to other languages

One of the most obvious regards in which the current proposal could be strengthened and refined is in its application to other languages. In the current work I chose to focus upon English, for pragmatic reasons. A cross-linguistic study would have been at the expense of the level of detail in which the English data was considered here. It was precisely this narrow focus, and consideration of a broader range of data than has been taken into account in previous approaches to the distribution of FCCs which revealed the new empirical generalisations presented here. It now remains to be seen to what extent these are repeated across languages. Broekhuis & Nye (2013) offer a preliminary application of the proposal made here to Dutch.

7.2.2.2 Extension to other embedded clause-types

Even with the empirical focus restricted to English, there is scope for further investigation in the domain of embedded clause-types. In the course of this work, the existence of additional types of FCC which have not previously received attention in the literature was also noted, such as the ‘complementiser-*how* exclamatives’ discussed in section 6.3.3.4. A detailed study of the empirical properties of these structures is required, to build upon the initial observations made here. Furthermore, the current work deals with indicative complement clauses alone. The connection to the vast body of work on subjunctive clauses remains to be explored. The interaction between clause-types and the polarity of the clause was not considered here at all, but also seems a fruitful direction for further research (cf. Moscati (2006), Authier (2013)).

7.2.2.3 Refinement of existing embedded clause-types

It is also to be borne in mind that there are still some unresolved issues concerning the clause-types which have been taken into consideration in the current work. As was noted at the outset (Chapter 3, section 3.2), certain instances of embedded clauses which have received attention in the literature and which could be considered to fall within the clause-types under consideration in the current work were not taken into account in the current study. Interrogative clauses introduced by *if/whether* (both true interrogative and resolute) were excluded from consideration. A detailed study of their internal syntactic and interpretive properties, and of their distribution, of the kind provided for the clauses under consideration in this account, is still required before it can be determined how they can be integrated into the current proposal. Recall also from Chapter 5, section 5.3.2.2.4b that even

with the class of *wh*-resolutives, not all *wh*-clauses always pattern alike: under the emotive factive predicates, resolutives introduced by *why* and *how* are degraded if not ungrammatical, whereas resolutives introduced by *what*, *where*, *when* and *who* are acceptable. This hints at finer-grained distinctions within what has in this work been treated as a unified class, which is not a surprising outcome given the cartographic work which already points in this direction (Rizzi (2001), Shlonsky & Soare (2011)). Declarative *that*-clauses introduced by the null complementiser were also not treated in this work, although as noted in Chapter 6, section 6.5.4, there is scope for them to be incorporated without the need for any additional modifications to be made.

7.2.2.4 Non-clausal complements

The focus of this work has been upon clausal complements only. The ability of the predicates in question to embed DP or PP complements was not investigated. In this regard, it is complementary to Levin's (1993: 18 f.n. 10) classificatory system for predicates, which 'restricts itself to verbs taking noun phrase and prepositional phrase complements'. Whether there are correlations between the ability of a predicate to embed DP or PP complements, and its requirement for (particular types of) FCC complements remains to be determined. Neither has anything been said about the distinction between predicates which can embed (certain kinds of) CP complements, and predicates which reject CP complements altogether. The properties and distribution of certain non-clausal complements also require consideration in comparison to those of the clausal complements under consideration here. As emerged from the consideration of empirical properties in Chapter 3, although differing in categorial status, free relatives (DPs) share many properties in common with certain kinds of FCCs (CPs). These are worthy of further attention. Another kind of DP complement showing connections to FCC complements which require investigation are concealed questions and concealed exclamations (cf. Grimshaw (1979: 297-306)). In the light of the proposal made in section 6.4, Portner & Zanuttini's (2005) approach to these seems to hold particular promise.

7.2.2.5 Non-finite complements

Non-finite complements received no attention in this work at all. It remains to be seen whether similar(ly) fine-grained distinctions emerge amongst non-finite complements as were shown in this work to hold between finite complements. Again, ability of a predicate to take only finite complements, only non-finite complements, neither, or both, also remains to be investigated.

7.2.3 Empirical questions (ii): relations to root clauses

The focus of this work has been exclusively upon (the distribution of) embedded clauses. As noted in Chapter 6, the subordinating function attributed to TypeP suggests that it is present only in the embedded domain. Nevertheless, the findings potentially have consequences for root clauses too. In section 6.4, the hypothesis was put forward that clause type is not encoded as a syntactic (or semantic) primitive, but arises from a combination of other syntactic components, a proposal originally made for root clauses (Zanuttini & Portner (2003), Lohnstein (2007), Isac (2012)). As noted in section 2.3, it has traditionally been claimed that fewer clause-type distinctions hold in the embedded domain than in root clauses, with imperatives found in the latter but not the former (Huddleston 1994). The picture that emerges when a finer-grained approach to embedded clause-types is taken is somewhat more complex, as there also appear to be clause-types attested in the embedded domain which do not have an obvious parallel in the root domain. CHCs are a case in point, although the connection between the complementiser use of *how* in embedded clauses and the use of *how* as a polarity marker in root clauses identified in recent work by van Gelderen (2013) requires further investigation. It is also not clear that the distinction between true interrogative and resolute complements, factive and non-factive *that*-clauses is replicated in the root domain, raising the issue again of whether the matrix predicate might not play a part in these distinctions. From the discussion in Chapter 3 it became clear that true interrogative complements have more in common with root interrogatives than do resolute complements. The question arises as to how similar the two structures are. The fact that SAI is obligatory in root interrogatives, at best optional in embedded interrogatives (see section 3.2.1.3 (B)) suggests there are distinctions. Similarly, whilst a parallel can be drawn between *that*-clause complements and root declarative clauses, these are distinguished by the obligatory absence of the complementiser *that* in the latter, versus its (optional, in English) presence in the former. A similar point can be made for *if*-/whether-clauses, in comparison to root yes/no questions. The relation between root and embedded polar interrogatives, and the connection between both of these and the conditional clauses to which they show a resemblance, requires further investigation.

7.2.4 Empirical questions (iii): embedding predicates and their FCC complements

The focus of this work has been almost exclusively on FCCs, with little attention paid to the predicates which embed these. The theme which runs throughout this section is that, having provided a detailed inventory of a range of English FCCs, their syntactic and interpretive properties and distribution, an equally detailed investigation of the properties of the predicates which embed these is now required in order to complete the picture.

7.2.4.1 Characterising verb classes

Up until now, classes of matrix predicates have been determined and characterised on the basis of the range of FCC complements which they permit alone, albeit if, as was noted in Chapter 5, in certain cases the classes which result overlap with those which have already been proposed in the literature on independent grounds. As was acknowledged in Chapter 5, whilst this provides us with a refined empirical picture of the classes of CP-embedding predicates, in itself it does not account for why the system is the way it is. It still remains to be explained why any particular matrix predicate allows the range of complements which it does - why does *ask* allow true interrogative complements, whilst *discuss* allows resolutive, exclamatives and factive *that*-clauses, and not vice versa? Are the selectional requirements of a matrix predicate predictable on the basis of other syntactic or semantic properties of the predicate? In order to answer such questions, we need to have the same kind of detailed understanding of the properties of matrix predicates that we have for FCCs. Comprehensive investigations of the complement-taking behaviour of verbal predicates, such as that conducted by Levin (1993), which identify (semantic) commonalities to which shared selectional behaviour could be attributed have tended to focus on DP-embedding predicates (although see Abels (2004), Egré (2008)). Assuming that ‘an examination of classes of verb defined by shared behaviour can play an important part in zeroing in on these meaning components’ (Levin 1993: 18) for CP-selecting predicates just as for DP- and PP-selecting predicates, in identifying classes of predicates on the basis of their shared complement-taking behaviour, the present account also lays the groundwork for understanding these patterns.

The current work also goes some way towards explaining the possible combinations of FCCs which are able to be selected by a single predicate. The claim that resolutive, exclamatives and factive *that*-clauses belong to a single [+factive, +wh] distributional type makes the strong prediction that a matrix predicate which permits any one of these FCCs, in fact permits all three. What is not explained, however, is why, for instance, there is no class of predicates which selects for non-factive complements, indifferent to their *wh*-status, given that there is a class of predicates which selects for all factive complements, both *wh* and non-*wh* (Class 4, see section 5.4.3, Table 21). Furthermore, only one class of predicates, Class 5, has the complex specification of allowing both [+wh, +factive] and [-wh, -factive] complements. Why are there such predicates, yet apparently none which permit both [-wh, +factive] and [-wh, -factive] complements, for instance? Future cross-linguistic investigation will reveal whether the exclusion of certain complementation patterns is specific to English, or is a more general property of the system. In the former case, we would wish to explore the boundaries of variation in terms of which combinations of the [+/-wh, +/-factive] distributional types can possibly be selected by a single predicate. In both cases, we would like to be able to exclude the non-attested combinations on principled grounds.

7.2.4.2 Other sorts of embedders

The discussion in this thesis is restricted to a consideration of FCCs as complements to verbal and, to a lesser extent, adjectival predicates, with no distinction made between the two. This is likely to be something of a simplification, given that FCCs to predicates such as *amazing*, *odd* with expletive *it* as subject might prove to be extraposed subject complements, rather than object complements. A more extensive study of the structure involved when an FCC occurs under such adjectival predicates is required in future research. To date, the question of explaining differences between FCCs has been phrased in terms of whether these should be ascribed either to the matrix predicate or to the FCC itself, but the idea that some of these may be attributable to the way in which predicates and complements are combined deserves exploration. Another kind of embedder deserving of further attention are prepositions. As was observed in Chapter 4, CHCs are able to occur as complement to P, just as true interrogatives, resolutes and exclamatives are. *That*-clause complements, whether factive or non-factive, are generally excluded from occurring as complement to P. Whilst in the context of the current system, this can be formalised as a requirement of prepositions for [+wh] complements, an explanation for this still needs to be sought. Clausal complements to nouns have also not received any attention in the current work (see Moulton (2011), (2012) for recent discussion).

7.2.4.3 The influence on FCC distribution of factors other than the matrix predicate

A complicating factor for any attempt to categorise and characterise matrix predicates on the basis of the range of complements which they permit is the observation, already made on several occasions in this work, and discussed in most detail in section 4.4.1.3, that the range of complement clauses permitted under any given predicate is determined not only by the properties of the predicate itself, but also by other factors of the matrix clause. Levin (1993: 19) already notes in relation to her study of verb diathesis alternations that ‘lexical aspect also plays an important part in determining verb behaviour’. Tense and the presence of modals and/or negation were observed also to play a role. The cases of this observed involved particular predicates: *believe*, which takes only *that*-clause complements vs. *can’t believe*, which takes exclamatives, *told*, the *that*-clause complement to which appear to be factive vs. *(keeps) telling me*, the *that*-clause complement to which appear to be non-factive. The first step in investigating the effect of such factors is to provide an inventory of the matrix clause properties which can have this kind of influence upon the range of FCCs permitted, and in determining whether these have the same effect upon on all predicates, or only upon a limited range of these. The second is in exploring what the implications of these patterns are for an implementation of the selection relation. How precisely do such factors influence the selectional requirements of a predicate? Or do they rather indicate that we need to dispense with the idea of complement selection as a relation between two heads

altogether? One possible explanation is that acceptable predicate-complement clause combinations are not a matter of selection, but rather of compatibility. This is discussed in the final sub-section below.

7.2.4.4 Selection vs. (in)compatibility

Whilst the account presented in this work has been cast in traditional terms of selection between a (verbal) predicate and the C head of the embedded clause bearing a particular feature specification, as discussed in sections 6.2.3, certain recent accounts (de Cuba & Ürögdi (2009a,b), Haegeman & Ürögdi (2010a,b)) have postulated that what is at play is rather compatibility between matrix predicates and types of complement clause. The two kinds of finite clausal complement which they posit, referential and non-referential, are in principle available with any CP-selecting predicate. Certain combinations are however ruled out, due to incompatibility between the lexico-semantic content of the matrix predicate and the semantic contribution of the complement clause. In fact, this is not a new idea. In the Appendix to her paper, Grimshaw (1979: 323) already suggests that the exclusion of exclamation marks from non-factive environments is predictable on semantic grounds, claiming that ‘[t]he semantic and pragmatic characteristics of exclamations and of the factive/nonfactive distinction automatically guarantee that the ill-formed combinations will not be generated’.

Nevertheless, she adds a note of caution, remarking that ‘there are examples of selection for which it is very hard even to imagine what such an explanation might be’ (Grimshaw 1979: 323). Whilst there might be scope to consider the exclusion of exclamation marks from non-factive contexts in terms of incompatibility, Grimshaw (1979: 323) concludes that ‘the behavior of factives is to some extent idiosyncratic’. Certain factive predicates (*tell*, *find out*) allow exclamative complements, whilst others with a similar meaning do not (*inform*, *find*). In the terms of my account, this behaviour is not in fact ‘idiosyncratic’, but is to be attributed to the fact that the former factive predicates permit *wh*-complements, whilst the latter factive predicates do not. Likewise, it is difficult to see how de Cuba & Ürögdi (2009a,b) and Haegeman & Ürögdi (2010a,b) could account for the full range of patterns presented here without the *wh*/non-*wh* distinction. Unless the ability of a predicate to take *wh*-complements itself turns out to be predictable (see Abels (2004), Egré (2008) for proposals in this direction, albeit only for *whether*-clauses), it seems that even if the ‘factive’ element proves amenable to explanation in terms of (in)compatibility, we are not yet in a position to do away with selection for FCCs entirely. In order even to begin to be able to assess the issue, however we first need a detailed characterisation of the properties of matrix predicates of the sort offered here for FCCs.

Bibliography

- Abels, Klaus (2004). 'Why surprise predicates do not embed polar interrogatives'. *Linguistische Arbeitsberichte* 81, 203-221.
- Abels, Klaus (2005). 'Remarks on Grimshaw's clausal typology'. In Emar Maier, Corien Bary & Janneke Huitink (eds.) *Proceedings of Sinn und Bedeutung* 9, 1-15.
- Abels, Klaus (2010). 'Factivity in exclamatives is a presupposition'. *Studia Linguistica* 64(1). 141-157.
- Aboh, Enoch (2004). *The Morphosyntax of Complement-Head Sequences: Clause Structure and Word Order Patterns in Kwa*. Oxford: Oxford University Press.
- Aboh, Enoch (2005). 'Deriving relative and factive constructions in Kwa'. In Laura Brugè, Giuliana Giusti, Nicola Munaro, Walter Schweikert & Giuseppina Turano (eds.) *Contributions to the 30th Incontro di Grammatica Generativa*. Libreria Editrice Cafoscarina, Venezia, 265-285.
- Aboh, Enoch & Roland Pfau (2010). 'What's a *wh*-word got to do with it?' *Mapping the left periphery: The cartography of syntactic structures* 5. In Paola Beninca & Nicola Munaro (eds.) *Mapping the Left Periphery: the cartography of syntactic structures, volume 5*. Oxford: OUP, 91-124.
- Abrusán, Márta. (2011). 'Presuppositional and Negative Islands: A Semantic Account'. *Natural Language Semantics* 19(3): 257-321.
- Adams, Marianne (1985). 'Government of empty subjects in factive clausal complements'. *Linguistic Inquiry* 16, 305-313.
- Adger, David (2003). *Core Syntax: A Minimalist Approach*. Oxford: OUP.
- Adger, David & Josep Quer (2001). 'The syntax and semantics of unselected embedded questions'. *Language* 77:1, 107-133.
- Aelbrecht, Lobke, Liliane Haegeman & Rachel Nye (2012) (eds.). *Main Clause Phenomena: New Horizons*. Amsterdam: John Benjamins.
- Allan, Keith (2006). 'Clause-type, primary illocution, and mood-like operators in English'. *Language Sciences* 28, 1-50.
- Alrenga, Peter (2005). 'A sentential subject asymmetry in English and its implications for complement selection'. *Syntax* 8:3, 175-207.
- Arsenijević, Boban (2009). 'Clausal complementation as relativization'. *Lingua* 119, 39-50.
- Austin, John L. (1962). *How to do Things with Words: The William James Lectures delivered at Harvard University in 1955*. Ed. James. O. Urmson. Oxford: Clarendon Press.
- Authier, Jean-Marc (1992). 'Iterated CPs and embedded topicalisation'. *Linguistic Inquiry* 23: 329-336.
- Authier, Jean-Marc (2013). 'Phase-Edge Features and the Syntax of Polarity Particles'. *Linguistic Inquiry* 44: 3, 345-389.

- Baker, Carl Leroy (1968). *Indirect questions in English*. Doctoral dissertation, University of Illinois at Urbana-Champaign.
- Baker, Carl Leroy (1970) 'Notes on the description of English questions: The role of an abstract question morpheme'. *Foundations of Language* 6:2, 197-219.
- Barbiers, Sjef (2000) 'The Right Periphery in SOV Languages: English and Dutch'. In Peter Svenonius (ed.) *The derivation of VO and OV*. Amsterdam: John Benjamins. 45-67.
- Basse, Galen (2008). 'Factive complements as defective phases'. In Natasha Abner & Jason Bishop (eds.) *WCCFL 27: Proceedings of the 27th West Coast Conference on Formal Linguistics*. Somerville, MA: Cascadilla Press, 54-62.
- Baunaz, Lena (under review). 'The structures of French complementizer que.' Ms., University of Geneva.
- Baunaz, Lena & Genoveva Puskás (to appear). 'The selection of French Mood'. In Marie-Hélène Côté, Eric Mathieu & Shana Poplack (eds). *Proceedings of the 41st Linguistic Symposium on Romance Languages (LSRL)*.
- Bayer, Jozef & Ellen Brandner (2008). *On Wh-head-movement and the doubly-filled-comp filter*. In Charles B. Chang & Hannah J. Haynie (eds.) *WCCFL 26: Proceedings of the 26th West Coast Conference on Formal Linguistics*. Somerville, MA: Cascadilla Press, 87-95.
- Beaver, David (2010). 'Have you noticed that your belly button lint colour is related to the colour of your clothing'. In Rainer Bäuerle, Uwe Reyle & Thomas Ede Zimmermann (eds.) *Presuppositions and discourse: Essays offered to Hans Kamp*. Bingley: Emerald, 65-99.
- Benincà, Paola (2001). 'Syntactic focus and intonational focus in the left periphery'. In Guglielmo Cinque & Giampaolo Salvi (eds.) *Current studies in Italian syntax 14: Essays offered to Lorenzo Renzi*. Amsterdam: Elsevier, 9-64.
- Benincà, Paola & Cecilia Poletto (2004). 'Topic, Focus and V2'. In Luigi Rizzi (ed.) *The Structure of CP and IP: The Cartography of Syntactic Structures, Volume 2*. Oxford: Oxford University Press. 52-75.
- Bennis, Hans (1997). 'Voegwoordvariëties'. In Ariane van Santen & Marijke van der Wal (eds.) *Taal in tijd en ruimte*. Leiden: Stichting Neerlandistiek (SNL), 353-364.
- Bennis, Hans (2000). 'On the interpretation of functional categories'. In Hans Bennis, Martin Everaert & Eric Reuland (eds.) *Interface strategies*. Koninklijke Nederlandse Academie van Wetenschappen, 37-53.
- Berman, Steven (1991). *On the semantics and logical form of wh-clauses*. Doctoral dissertation, University of Massachusetts, Amherst.
- Bhatt, Rajesh (2010). 'Comments on "Referential CPs and DPs: An operator movement account"'. *Theoretical Linguistics* 36:2/3, 173-177.
- Bhatt, Rakesh & James Yoon (1991). *On the composition of Comp and parameters of V-2*. In Dawn Bates (ed.) *WCCFL 10: Proceedings of the 10th West Coast Conference on Formal Linguistics*, 41-53.
- Bianchi, Valentina & Mara Frascarelli (2012). 'Main clause phenomena and the conversational dynamics'. Talk given at the Linguistics Department, University of Geneva, 25th April 2012.
- Biberauer, Theresa (2010). '*MAN is that weird!* Exclamative V2 in Modern English and beyond'. Talk given at the Annual Meeting of the LAGB (Linguistics Association of Great Britain), University of Leeds.
- Bocci, Giuliano (2008). 'On the Syntax-Prosody Interface: An Analysis of the Prosodic Properties of Postfocal Material in Italian and Its Implications'. *Nanzan Linguistics: Special Issue* 5, 13-42.
- Bocci, Giuliano (2013). *The Syntax-Prosody Interface: A cartographic perspective with evidence from Italian*. *Linguistik Aktuell/Linguistics Today* 204. Amsterdam: John Benjamins.
- Bolinger, Dwight (1972). *Degree words*. The Hague: Mouton.
- Bošković, Željko (2007). 'On the locality and motivation of Move and Agree: an even more minimal theory'. *Linguistic Inquiry* 38. 589-644.

- Brander, Ellen (2010). 'On the syntax of verb- initial exclamatives'. *Studia Linguistica* 64: 1, 81-115.
- Bresnan, Joan (1972). *Theory of complementation in English syntax*. Doctoral dissertation, Massachusetts Institute of Technology (MIT), Cambridge.
- Bresnan, Joan, & Jane Grimshaw (1978). 'The syntax of free relatives in English'. *Linguistic Inquiry*, 9:3, 331-391.
- Broekhuis, Hans & Rachel Nye (2013). 'Factivity and interrogative complement clauses'. Ms.
- Caponigro, Ivano (2002). 'Free Relatives as DPs with a Silent D and a CP Complement'. In Vida Samiian (ed.) *Proceedings of WECOL (Western Conference on Linguistics) 2000*. Fresno, California: California State University, 140-150.
- Caponigro, Ivano & Lisa Pearl (2009). 'The nominal nature of *where*, *when* and *how*: evidence from free relatives'. *Linguistic Inquiry*, 40(1), 155-164.
- Caponigro, Ivano and Maria Polinsky (2008). 'Relatively speaking (in Circassian)'. In Natasha Abner and Jason Bishop (eds.) *Proceedings of the 27th West Coast Conference on Formal Linguistics*. Somerville: Cascadilla Proceedings Project, 81-89.
- Cardinaletti, Anna (1989). *Impersonal Constructions and Sentential Arguments in German*. Padua: Unipress,
- Cecchetto, Carlo & Caterina Donati (2011). 'Relabelling heads. A unified account for relativization structures'. *Linguistic Inquiry* 42:4, 519-560.
- Chen, D. (1997). 'A look at sluicing in exclamative constructions'. Ms., University of Connecticut.
- Cheng, Lisa Lai Shen (1991). 'On the Typology of *wh*-questions'. Doctoral dissertation, Massachusetts Institute of Technology (MIT), Cambridge.
- Chernilovskaya, Anna (2009). 'Exclamatives have a question semantics!' Nijmegen Semantics Colloquium. Slides available from <http://www.phil.uu.nl/~achern/papers/nijmegen2009-slides.pdf>.
- Chomsky, Noam (1957). *Syntactic Structures*. The Hague: Mouton.
- Chomsky, Noam (1970). *Some empirical issues in the theory of transformational grammar*. Indiana University Linguistics Club.
- Chomsky, Noam (1972). *Conditions on Transformations*. Indiana University Linguistics Club.
- Chomsky, Noam (1973). *Conditions on Transformations*. In Stephen Anderson & Paul Kiparsky (eds.) *A Festschrift for Morris Halle*, 232-286.
- Chomsky, Noam (1977). *Essays on form and interpretation*. New York: North-Holland.
- Chomsky, Noam (1995). *The Minimalist Program*. Cambridge, Massachusetts: MIT press.
- Chomsky, Noam (2000). *New horizons in the study of language and mind*. Cambridge: Cambridge University Press.
- Chomsky, Noam (2013). 'Problems of projection'. *Lingua* 130, 33-49.
- Chomsky, Noam & Howard Lasnik (1977). "Filters and Control". *Linguistic Inquiry* 8:3. 425-504.
- Christidis, Anastasios Phoivos (1986). 'The morpheme 'pu' as a definite clause nominalizer'. *Studies in Greek Linguistics* 7: 134-148.
- Cinque, Guglielmo (1990). *Types of A'-Dependencies*. Cambridge, Massachusetts: MIT press.
- Cinque Guglielmo (1996). 'The antisymmetric programme: theoretical and typological implications'. *Journal of Linguistics* 32: 2, 447-464.
- Cinque Guglielmo (1999). *Adverbs and functional heads: A cross-linguistic perspective*. Oxford: Oxford University Press.
- Cinque, Guglielmo, & Luigi Rizzi (2008). 'The cartography of syntactic structures'. *Studies in Linguistics*, 2, 42-58.
- Cinque, Guglielmo & Luigi Rizzi (2010) (eds.). *Mapping spatial PPs. The cartography of syntactic structures, volume 6*. Oxford: Oxford University Press.
- Collins, Chris (1991). 'Why and How Come'. In Lisa Cheng and Hamida Demirdache (eds.), *More Papers on Wh-Movement: MIT Working Papers in Linguistics* 15, 31-45.

- Coniglio, Marco & Iulia Zegrean (2012). 'Splitting up force: Evidence from discourse particles'. In Lobke Aelbrecht, Liliane Haegeman & Rachel Nye (eds.) *Main Clause Phenomena: New Horizons*. Amsterdam: John Benjamins, 229-256.
- Corver, Norbert (1997). 'The Internal Syntax of the Dutch Extended Adjectival Projection'. *Natural Language & Linguistic Theory* 15, 289-368.
- van Craenenbroeck, Jeroen (2004). *Ellipsis in Dutch dialects*. Utrecht: LOT (Landelijke Onderzoekschool Taalwetenschap) dissertation series 96.
- van Craenenbroeck, Jeroen (2006). 'Transitivity failures in the left periphery and foot-driven movement operations'. In Jeroen van de Weijer & Bettelou Los (eds.), *Linguistics in the Netherlands 2006*. Amsterdam: John Benjamins, 52-64.
- Cruschina, Silvio (2011). *Discourse-Related Features and Functional Projections*. Oxford: OUP.
- de Cuba, Carlos (2007). *On (non) factivity, clausal complementation and the CP-field*. Doctoral dissertation, Stony Brook University.
- de Cuba, Carlos & Jonathan E. MacDonald (2012). 'Referentiality in Spanish CPs'. In María Victoria Camacho-Taboada, Ángel Jiménez-Fernández, Javier Martín-González & Mariano Reyes-Tejedor (eds.) *Information Structure and Agreement*. *Linguistik Aktuell (Linguistics Today)* 197. Amsterdam: John Benjamins. 117-140.
- de Cuba, Carlos & Barbara Ürögdi (2009a). 'Eliminating factivity from syntax: Sentential complements in Hungarian'. In Marcel den Dikken & Robert M. Vago (eds.) *Approaches to Hungarian* 11. Amsterdam & New York: John Benjamins, 29-64.
- de Cuba, Carlos & Barbara Ürögdi (2009b). 'Clearing up the facts on complementation'. *University of Pennsylvania Working Papers in Linguistics* 16:1, 41-50.
- Culicover, Peter W. & Ray Jackendoff (2005). *Simpler Syntax*. Oxford: Oxford University Press.
- Curme, George O. (1931). *Syntax*. Boston: Heath.
- Danckaert, Lieven (2012). *Latin Embedded Clauses*. *Linguistik Aktuell (Linguistics Today)* 184. Amsterdam: John Benjamins.
- Defrancq, Bart (2005). *L'interrogative enchâssée: structure et interpretation*. Brussels: De Boeck/Duculot.
- Defrancq, Bart (2009). 'Comment narratif'. *Travaux de linguistique* 58: 1, 89-106.
- Demonte, Violeta & Olga Fernández-Soriano (2009). 'Force and finiteness in the Spanish complementizer system'. *Probus* 21:1, 23-49.
- den Dikken, Marcel & Anastasia Giannakidou (2002). 'From hell to polarity: Aggressively non-D-linked *wh*-phrases as polarity items.' *Linguistic Inquiry* 33: 1, 31-61.
- Egré, Paul (2008). 'Question-embedding and factivity'. In Franck Lihoreau (ed.) *Grazer Philosophische Studien, Knowledge and Questions*, 85-125. Pre-publication manuscript version available from: http://jeannicod.ccsd.cnrs.fr/ijn_00226386/fr/. Last accessed 17.09.2013.
- Elliott, Dale (1971). 'The Grammar of Emotive and Exclamatory Sentences in English, Doctoral dissertation, The Ohio State University, Columbus, Ohio. [Reproduced in Working Papers in Linguistics No. 8, Computer and Information Science Research Center, The Ohio State University].
- Elliott, Dale (1974) 'Toward a Grammar of Exclamations,' *Foundations of Language* 11, 231-246.
- Emonds, Joseph (1970). Root and structure-preserving transformations. Doctoral dissertation: MIT.
- Emonds, Joseph (1976). *A transformational approach to English syntax*. New York: Academic Press.
- Emonds, Joseph (1992). 'Complement selection and the syntactic lexicon: rereading *Syntactic Structures*'. In Liliane Tasmowski, & Anne Zribi-Hertz (eds.), *De la musique à la linguistique: hommages à Nicolas Ruwet*. Ghent: Communication & Cognition, 215-228.
- Evans, Nick (2007). 'Insubordination and its uses. In Irina Nikolaeva (ed.) *Finiteness: Theoretical and Empirical Foundations*. Oxford: OUP, 366-431.

- Evans, Nick (2009). 'Insubordination and the grammaticalisation of interactive presuppositions'. Talk given at the conference *Methodologies in determining morphosyntactic change*, Osaka.
- Fasold, Ralph & Walt Wolfram (1970). Some linguistic features of Negro dialect. In R. Fasold & R. Shuy (Eds.), *Teaching Standard English in the Inner City*. Washington, DC: Center for Applied Linguistics, 41-86.
- Filppula, Markku (1999). *The grammar of Irish English: Language in Hibernian style*. Routledge Studies in Germanic Linguistics 5. London & New York, Routledge.
- Fitzpatrick, Justin (2005). 'The whys and how comes of presupposition and NPI licensing in questions. In John Alderete, Chung-hye Han & Alexei Kochetov (eds.) WCCFL 24: Proceedings of the 24th West Coast Conference on Formal Linguistics. Somerville, MA: Cascadia Proceedings Project, 138-145.
- Frank, Jane (1990). 'You call that a rhetorical question? Forms and Functions of Rhetorical Questions in Conversation'. *Journal of Pragmatics* 14: 5, 723-738.
- Frege, Gottlob (1892). 'Über Sinn und Bedeutung'. *Zeitschrift für Philosophie und Philosophische Kritik* 100: 25-50.
- Garzonio, Jacopo (2004). 'Interrogative Types and Left Periphery: Some Data from the Fiorentino Dialect'. In C. Polo & B. Patruno (eds.) *Quaderni di lavoro dell'ASIS*, vol. 4, Università di Padova.
- van Gelderen, Elly (2009). 'Renewal in the left periphery: economy and the complementiser layer'. *Transactions of the Philological Society* 107:2, 131-195.
- van Gelderen, Elly (2013a). 'The CP cycle'. Powerpoint presentation from International Conference on Historical Linguistics (ICHL), Oslo, Norway, 5-9 August 2013. Available to download from <http://www.public.asu.edu/~gelderer/lect.htm>. Last accessed 12.09.2013.
- van Gelderen, Elly (2013b). 'Generative Grammar and Historical Linguistics: what cycles tell us'. Powerpoint presentation from International Conference on Historical Linguistics (ICHL), Oslo, Norway, 5-9 August 2013. Available to download from <http://www.public.asu.edu/~gelderer/lect.htm>. Last accessed 12.09.2013.
- Giannakidou, Anastasia (2006). *Only*, emotive factives, and the dual nature of polarity dependency. *Language* 82: 575-603.
- Ginzburg, Jonathan (1992). *Questions, queries and facts: A semantics and pragmatics for interrogatives*. Doctoral dissertation, Stanford University.
- Ginzburg, Jonathan. (1995a). 'Resolving questions I.' *Linguistics and Philosophy* 18: 5, 459-527.
- Ginzburg, Jonathan. (1995b). 'Resolving questions II'. *Linguistics and Philosophy* 18: 6, 567-609.
- Ginzburg, Jonathan & Ivan Sag (2000). *Interrogative investigations*. California: CSLI publications.
- Gras, Pedro & Marisol Sansiñena (2012). 'Discourse insubordination: free-standing declarative *que*-clauses in spoken Spanish.' Talk given at 45th Annual Meeting of SLE, Stockholm University.
- Grimshaw, Jane (1977). *English Wh Constructions and the Theory of Grammar*, Doctoral dissertation, University of Massachusetts, Amherst, Massachusetts. [Distributed by the Graduate Linguistic Student Association, Department of Linguistics, University of Massachusetts, Amherst, Massachusetts].
- Grimshaw, Jane (1979). 'Complement selection and the lexicon'. *Linguistic Inquiry* 10:2, 279-326.
- Grimshaw, Jane (2000). 'Locality and extended projection'. *Amsterdam Studies in the Theory and History of Linguistic Science* 4, 115-134.
- Grimshaw, Jane (2005). *Words and structure*. Chicago: CSLI publications.
- Grimshaw, Jane (2011). 'The place of Slifting in the English complement system'. Talk given at *GIST 3 (Generative Initiatives in Syntactic Theory) Conference: Cartographic Structures and Beyond*. May 12th-13th Ghent, Belgium.
- Groenendijk, Jeroen & Martin Stokhof (1984a). *Studies on the semantics of questions and the pragmatics of answers*. Doctoral dissertation, University of Amsterdam.

- Groenendijk, Jeroen & Martin Stokhof (1984b). 'On the semantics of questions and the pragmatics of answers'. *Varieties of Formal Semantics* 3, 143-170.
- Groenendijk, Jeroen & Martin Stokhof (1989). 'Type-shifting rules and the semantics of interrogatives'. In Gennaro Chierchia, Barbara Partee & Raymond Turner (eds.) *Properties, types, and meanings. Volume 2: Semantic issues*, 21-68. Dordrecht: Kluwer Academic Publishers. Reprinted (2002) in Paul Portner & Barbara H. Partee, (eds.), *Formal Semantics, The Essential Readings*. Oxford: Blackwell Publishing, 421-456.
- Groenendijk, Jeroen & Martin Stokhof (1997). 'Questions'. In Johan van Benthem & Alice ter Meulen (eds.) *Handbook of Logic and Language*. 1055-1124. Amsterdam: Elsevier Science B.V. & MIT Press.
- Groos, Anneke & Henk van Riemsdijk (1981). 'Matching effects in free relatives: a parameter of core grammar'. In Adriana Belletti, Luciana Brandi & Luigi Rizzi (eds.) *Theory of Markedness in Generative Grammar*. Pisa: Scuola Normale Superiore, 171-216.
- Gunlogson, Christine (2001) *True to form*. Doctoral dissertation, University of California, Santa Cruz.
- Gunlogson, Christine (2002) 'Declarative questions'. In Brendan Jackson (ed.) *Semantics and Linguistic Theory (SALT) XII*. Department of Linguistics, Cornell University: CLC Publications.
- Haegeman, Liliane (2006). 'Argument Fronting in English, Romance CLLD and the Left Periphery'. In Raffaella Zanuttini, Hector Campos, Elena Herburger, & Paul Portner (eds.) *Negation, Tense and Clausal Architecture: Cross-linguistic Investigations*. Georgetown University Press, 27-52.
- Haegeman, Liliane (2012a). *Adverbial Clauses, Main Clause Phenomena, and the Composition of the Left Periphery: The Cartography of Syntactic Structures*. Vol. 8. OUP: Oxford.
- Haegeman, Liliane (2012b). 'The syntax of MCP: deriving the truncation account'. In Lobke Aelbrecht, Liliane Haegeman & Rachel Nye (eds.) *Main Clause Phenomena: New Horizons*. Amsterdam: John Benjamins, 113-134.
- Haegeman, Liliane & Jacqueline Guéron (1999). *English Grammar: a Generative perspective*. Oxford: Blackwell.
- Haegeman, Liliane & Virginia Hill (2011). 'The syntacticization of discourse'. Ms. Ghent University and University of New Brunswick-SJ. Available to download from <http://www.gist.ugent.be/members/lilianehaegeman>. Last accessed 15.09.2013.
- Haegeman, Liliane & Rachel Nye (2012). Declarative *how*: factivity, referentiality and D-linking'. Mismatches in Clause Linkage Workshop, April 2012, ZAS, Berlin.
- Haegeman, Liliane & Barbara Ürögdi (2010a). 'Referential CPs and DPs: An operator movement account'. *Theoretical Linguistics* 36(2-3), 111-152.
- Haegeman, Liliane & Barbara Ürögdi. (2010b). 'Operator movement, referentiality and intervention'. *Theoretical Linguistics* 36(2-3), 233-246.
- Han, Chung-hye (2002). 'Interpreting interrogatives as rhetorical questions'. *Lingua*, Vol. 112: 3, 201-229.
- Hegarty, Michael (1992). 'Familiar complements and their complementizers: On some determinants of A'-locality'. Ms., University of Pennsylvania.
- Henry, Alison (1995). *Belfast English and Standard English*. New York: Oxford University Press.
- Heycock, Caroline (2006). 'Embedded Root Phenomena'. In Martin Everaert & Henk van Riemsdijk (eds.). *The Blackwell Companion to Syntax, Volume II*. Oxford: Blackwell, 174-209.
- Hinzen, Wolfram & Michelle Sheehan (2011). 'Moving towards the edge'. *Linguistic Analysis* 37: 3-4, 405-458.
- Hooper, Joan & Sandra Thompson (1973). 'On the applicability of Root Transformations'. *Linguistic Inquiry* 4: 465-491.
- Horiguchi, Ikiko (1981). 'Factivity and syntactic behavior'. *Sophia linguistica* 7, 45-66.

- Horn, Laurence R. (2010). 'Multiple negation in English and other languages'. In Laurence R. Horn (ed.) *The Expression of Negation*. Berlin: Mouton de Gruyter.
- Huang, C.-T. James & Masao Ochi (2004). 'Syntax of *the hell*: two types of dependencies'. *Proceedings of North-East Linguistics Society (NELS)* 34:1, 279-294.
- Huddleston, Rodney (1993a). 'Remarks on the construction 'You won't believe who Ed has married''. *Lingua* 91:2-3, 175-184.
- Huddleston, Rodney (1993b). 'On exclamatory-inversion sentences'. *Lingua* 90, 259-269.
- Huddleston, Rodney (1994). 'The contrast between interrogatives and questions'. *Journal of Linguistics* 30, 411-439.
- Huddleston, Rodney & Geoffrey Pullum (2002). *The Cambridge Grammar of the English Language*. Cambridge: CUP.
- Huddleston, Rodney and Geoffrey Pullum (2006). 'Coordination and subordination'. In Bas Aarts & April McMahon (eds.) *The Handbook of English Linguistics*. Malden, MA: Blackwell, 198-219.
- Iatridou Sabine & Anthony Kroch (1992). 'The licensing of CP recursion and its relevance to the Germanic verb-second phenomenon'. *Working Papers in Scandinavian Syntax* 50: 1-24.
- Irurtzun, Aritz (2009). 'Why Y: on the centrality of syntax in the architecture of grammar'. *Catalan Journal of Linguistics* 8, 141-160.
- Isac, Daniela (2012). 'Decomposing force'. In Anna Maria Di Sciullo (ed.) *Towards a Biolinguistic Understanding of Grammar: Essays on Interfaces*. John Benjamins: Amsterdam, 89-115.
- Izvorski, Roumyana (2000). 'Free adjunct free relatives'. In Roger Billerey & Brook Danielle Lillehaugen (eds.) *WCCFL 19: Proceedings of the 19th West Coast Conference on Formal Linguistics, volume 19*, 232-245.
- Jespersen, Otto (1924). *The Philosophy of Grammar*. London: Allen & Unwin.
- Jespersen, Otto (1933). *Essentials of English Grammar*. London: Allen & Unwin.
- Kaplan, Ronald M. & Joan Bresnan (1982). 'Lexical-Functional Grammar: A Formal System for Grammatical Representation'. In Joan Bresnan (ed.) *The Mental Representation of Grammatical Relations*. Cambridge, MA: MIT Press, 173-281.
- Karttunen, Lauri (1971). 'Some observations on factivity'. *Research on Language & Social Interaction* 4:1, 55-69.
- Karttunen, Lauri (1973). 'Presuppositions of compound sentences'. *Linguistic inquiry* 4: 2, 169-193.
- Karttunen, Lauri (1977). 'Syntax and semantics of questions'. *Linguistics and philosophy*, 1:1, 3-44.
- Kastner, Itamar (2013). 'Selection: Factivity and Interpretation'. Ms., NYU.
- Katz Jerrold J. & Paul M. Postal (1964). *An integrated theory of linguistic descriptions*. Cambridge, Massachusetts: MIT Press.
- Kay, Paul & Laura A. Michaelis (2009). 'Constructional meaning and compositionality'. In C. Maienborn, K. von Steubner & Paul Portner, (eds.), *Semantics: An International Handbook of Natural Language Meaning, HSK Handbooks of Linguistics and Communication Science Series 23: Semantics and Computer Science*. Berlin: Mouton de Gruyter, 2271-2296.
- Kayne, Richard S. (1991). 'Romance Clitics, Verb Movement, and PRO'. *Linguistic Inquiry* 22: 4, 647-686.
- Kayne, Richard S. (2008). 'Why isn't *this* a complementiser?' Ms. Available to download from: <http://linguistics.as.nyu.edu/object/RichardSKayne.html>. Last accessed 11.09.2013. To appear in Peter Svenonius (ed.) *Functional Structure from Top to Toe: A Festschrift for Tarald Taraldsen*. New York: Oxford University Press.
- Kidwai, Ayesha (2010). 'The cartography of phases: fact and inference in Meiteilon'. In Anna Maria Di Sciullo & Virginia Hill (eds.) *Edges, heads and projections: interface properties*. Amsterdam: John Benjamins, 233-262.
- Kim, Jeong-Seok (2005). 'Sluicing in English'. *Studies in Generative Grammar* 7. 153-193.

- Kimball, John (1971) 'Notes on Conjunctive and Disjunctive Questions'. Paper read to the First Annual California Linguistics Conference.
- Kiparsky, Paul & Carol Kiparsky (1971) 'Fact'. In Manfred-Heidolph Bierwisch & Karl Erich Heidolph (eds.) *Progress in Linguistics*. The Hague: Mouton. 143-73.
- König, Ekkehard & Peter Siemund (2007). 'Speech act distinctions in grammar'. In Timothy Shopen (ed.) *Language Typology and Syntactic Description. Volume 1: Clause Structure* (2nd edition). Cambridge: Cambridge University Press.
- Koopman, Hilda (1993). 'The structure of Dutch PPs'. Ms., University of California, Los Angeles (UCLA).
- Koster, Jan (1978). 'Why subject sentences don't exist'. In Samuel J. Keyser (ed.) *Recent Transformational Studies in European Languages*. Cambridge, MA: MIT Press.
- Krapova, Iliyana (2010). 'Bulgarian relative and factive clauses with an invariant complementizer'. *Lingua* 120:5, 1240-1272.
- Krifka, Manfred (1999). 'Quantifying into question acts'. In Tanya Matthews & Devon Strolovitch (eds.) *SALT IX*. Department of Linguistics, Cornell University: CLC Publications
- Krifka, Manfred (2001). 'Quantifying into question acts. *Natural Language Semantics*, 9:1, 1-40.
- Krivochen, Diego & Katharina Miechowicz-Mathiasen (2012). 'Introduction to Radical Minimalism: the Case Theory'. Powerpoint available to download from <http://www.academia.edu/1719840/>. Last accessed 13.09.2013.
- Lahiri, Utpal (1991). *Embedded interrogatives and predicates that embed them*. Doctoral dissertation, Massachusetts Institute of Technology (MIT), Cambridge.
- Lahiri, Utpal (2000). 'Lexical selection and quantificational variability in embedded interrogatives'. *Linguistics and Philosophy* 23, 325-389.
- Lahiri, Utpal (2002). *Questions and Answers in Embedded Contexts*. Oxford: Oxford University Press.
- Larson, Richard K. (1985). 'On the Syntax of Disjunction Scope'. *Natural Language and Linguistic Theory* 3, 217-264.
- Larson, Richard K. (1987). "'Missing prepositions'" and the analysis of English free relative clauses'. *Linguistic Inquiry* 18: 2, 239-266.
- Lee, Felicia. (2001). 'Wh- and focus are not the same projection. In Karine Megerdooomian & Leora Anne Bar-el (eds.) *WCCFL 20: Proceedings of the 20th West Coast Conference on Formal Linguistics*, Somerville, MA: Cascadilla Press, 346-357.
- Legate, Julie Anne (2002). 'The hows of *wh*-scope marking in Warlpiri'. Paper presented at NELS 33, MIT.
- Legate, Julie Anne (2010). 'On how *how* is used instead of *that*'. *Natural Language and Linguistic Theory* 28, 121-134.
- Leonarduzzi, Laetitia (2000). *La subordonnée interrogative en anglais contemporain*. Doctoral Dissertation, Université de Provence-Aix-Marseille I.
- Levin, Beth (1993). *English Verb Classes and Alternations: A Preliminary Investigation*. Chicago: University of Chicago Press.
- Levinson, Stephen C. (1983). *Pragmatics*. Cambridge: Cambridge University Press.
- Lohnstein, Horst (2007). 'On clause types and sentential force'. *Linguistische Berichte* 209: 63-86.
- López Couso María José & Belén Méndez Naya (1996). 'How to consider *how*: on *how* as a declarative complementiser in the history of English'. In Javier Pérez Guerra, Marta Dahlgren, Teresa Fernández-Colmeiro & Eduardo J. Varela Bravo (eds.). *Proceedings of the XIXth International Conference of AEDEAN*. Vigo: Universidade de Vigo.
- Maki, Hideki, Lizanne Kaiser & Masao Ochi (1999). 'Embedded topicalization in English and Japanese'. *Lingua* 109, 1-14.
- Matos, Gabriela & Ana Maria Brito (2012a). 'The alternation improper indirect *wh*-questions and DPs containing restrictive relatives and the nominal/referential properties of CP'. Talk given at GIST (Generative Initiatives in Syntactic Theory) workshop 'Parallels between the clausal and the nominal domain) at the 45th Annual Meeting of the Societas

- Linguistica Europaea (SLE), Stockholm University, Sweden. Handout available from: <http://www.gist.ugent.be/sleworkshopparallels>. Last accessed 15.09.2013.
- Matos, Gabriela & Ana Maria Brito (2012b). 'The alternation between improper indirect questions and DPs containing a restrictive relative'. In María Victoria Camacho-Taboada, Ángel Jiménez-Fernández, Javier Martín-González & Mariano Reyes-Tejedor (eds.) *Information Structure and Agreement*. Linguistik Aktuell (Linguistics Today) 197. Amsterdam: John Benjamins. 83-116.
- McCawley, Noriko (1973). 'Boy! Is syntax easy?' *Papers from the Ninth Regional Meeting of the Chicago Linguistic Society*. Chicago: Chicago Linguistic Society, 366-377.
- McCloskey, James (2002). 'Resumption, Successive Cyclicity, and the Locality of Operations'. In Samuel David Epstein, T. Daniel Seely (eds.) *Derivation and Explanation in the Minimalist Program*. Blackwell: Oxford, 184-226.
- McCloskey, James (2006). 'Questions and questioning in a local English'. In Raffaella Zanuttini, Héctor Campos, Elena Herburger & Paul H. Portner (eds.) *Crosslinguistic Research in Syntax and Semantics: Negation, Tense and Clausal Architecture*. Georgetown: Georgetown University Press, 87-126.
- Melvold, Janis (1991). 'Factivity and definiteness'. In Lisa Cheng & Hamida Demirdache, (eds.), *More Papers on Wh-Movement, MIT Working Papers in Linguistics*. No. 15. MIT: Cambridge, Mass, 97-117.
- Merchant, Jason (2001) *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford University Press: Oxford.
- Merchant, Jason (2004). 'Fragments and ellipsis'. *Linguistics and Philosophy* 27:6. 661-738.
- Michaelis, Laura A. (2001). 'Exclamative constructions.' *Language Typology and Language Universals* 2, 1038-1050.
- Milner, Jean-Claude (1974). 'Les exclamatives et le Complementizer'. In Christian Rohrer & Nicolas Ruwet (eds.) *Actes du colloque franco-allemand de grammaire transformationnelle* I. Tübingen: Niemeyer, 78-121.
- Miyagawa, Shigeru (2012). 'Agreements that occur mainly in the main clause'. In Lobke Aelbrecht, Liliane Haegeman & Rachel Nye (eds.). *Main Clause Phenomena: New Horizons*. Amsterdam: John Benjamins, 79-111.
- Moscato, Vincenzo (2006). *The scope of negation*. Doctoral dissertation, University of Siena.
- Moulton, Keir (2009). *Natural selection and the syntax of clausal complementation*. Doctoral dissertation, University of Massachusetts.
- Moulton, Keir (2011). 'CPs don't Saturate: Deriving the distribution of clausal complements'. Powerpoint available to download from <https://sites.google.com/site/keirmoulton>. Last accessed 12.09.2013.
- Moulton, Keir (2012). 'Clause Positions'. Powerpoint available to download from <https://sites.google.com/site/keirmoulton>. Last accessed 12.09.2013.
- Munaro, Nicola (2011). 'Toward a hierarchy of clause types'. In Paola Beninca & Nicola Munaro (eds.) *Mapping the Left Periphery: the cartography of syntactic structures, volume 5*. Oxford: OUP, 125-162.
- Munaro Nicola & Hans-Georg Obenauer (1999). 'On underspecified *wh*-elements in pseudo-interrogatives'. *Working Papers in Linguistics*, 9:1-2, 181-253.
- Munaro, Nicola & Cecilia Poletto (to appear). 'Synchronic and diachronic clues on the internal structure of 'where' in Italo-Romance'. Ms.
- Munsat, Stanley (1986). 'Wh-complementizers'. *Linguistics and Philosophy* 9, 191-217.
- Nouwen, Rick & Anna Chernilovskaya (2013). 'Wh-exclamatives with and without scales'. Ms. Available from: <http://ricknouwen.org/rwfn/papers/>. Last accessed 15.09.2013.
- Nye, Rachel (2009). *How pseudo-questions and the interpretation of wh-clauses in English*. Master's thesis, University of Essex. Available from <http://www.gist.ugent.be/members/rachelnye>.

- Nye, Rachel (2011a). Competing analyses for *how* pseudo-questions in English. In Ali Agryani & Malgorzata Krzek (eds.) *Newcastle Working Papers in Linguistics* 17. University of Newcastle, Centre for Research in Linguistics and Language Sciences, 131-153.
- Nye, Rachel (2011b). 'All about the syntax of *-abouts*'. Presentation given at ICLCE 4 (International Conference on the Linguistics of Contemporary English). July 2011, Osnabrück University, Germany. Available from <http://www.gist.ugent.be/members/rachelnye>.
- Nye, Rachel (2011c). 'All about the syntax of *whereabouts* and *whenabouts*'. Presentation given at the 44th Annual Meeting of the Societas Linguistica Europaea (SLE). September 2011, Universidad de la Rioja, Logroño, Spain. Available from <http://www.gist.ugent.be/members/rachelnye>.
- Nye, Rachel (2012). The categorial status of Dutch and English declarative *hoe-/how*-complement clauses. In Marije van Hattum, Jonathan Morris & Dorothea Hoffman (eds.) *Salford Working Papers in Linguistics and Applied Linguistics* 2, University of Salford, 28-47.
- Nye, Rachel & Liliane Haegeman (2012). Presupposition in the clausal and nominal domains. 45th Annual Meeting of the Societas Linguistica Europaea (SLE), Stockholm University, Sweden. Handout available to download from <http://www.gist.ugent.be/members/rachelnye>.
- Nye, Rachel (2013). 'Rethinking the distribution of English finite clausal complements: evidence from complementiser-*how* clauses'. To appear in Suzanne Aalberse & Anita Auer (eds.) *Linguistics in the Netherlands 2013 [AVT 30]*. Amsterdam: John Benjamins.
- Obenauer, Hans-Georg (1994). *Aspects de la syntaxe A-barre: effets d'intervention et mouvement des quantifieurs*. Doctoral dissertation, Université de Paris VIII.
- Ohlander, Sölve (1986). 'Question-orientation versus answer-orientation in English interrogative clauses'. In Dieter Kastovsky & Aleksander Szwedek (eds.). *Linguistics across Historical and Geographical Boundaries: in Honour of Jacek Fisiak on the occasion of his 50th birthday*, Vol. 2. Berlin: Mouton de Gruyter, 963-982.
- Onions, Charles T. (1969). *An advanced English syntax* (6th edition). London: Kegan, Trench, Trubner & Co.
- Ono, Hajime (2006). *An investigation of exclamatives in English and Japanese: syntax and sentence processing*. Doctoral dissertation, University of Maryland, College Park.
- Ono, Hajime & Tomohiro Fujii (2006). 'English *Wh*-exclamatives and the Role of T-to-C in *Wh*-clauses'. *University of Maryland Working Papers in Linguistics* 14, 163-187.
- Oosterhof, Albert (2006). *Generics in Dutch and Related Languages: Theoretical and Empirical Perspectives*. Doctoral dissertation, Ghent University.
- Partee, Barbara (2006). 'Introduction to Formal Semantics and Compositionality'. Available from http://people.umass.edu/partee/NZ_2006/NZ06_Ling_310.htm. Last accessed 15.09.2013.
- Pesetsky, David (1987). '*Wh*-in-situ: Movement and unselective binding'. In Eric J. Reuland & Alice G. B. ter Meulen (eds.) *The representation of (in)definiteness. Current Studies in Linguistics*. Cambridge, Massachusetts: MIT press, 98-129.
- Pesetsky, Dave & Esther Torrego (2001). 'T-to-C movement: Causes and consequences'. In Michael Kenstowicz, (ed.) *Ken Hale: A Life in Language*. Cambridge, MA: MIT Press, 355-426.
- Plann, Susan (1982). 'Indirect questions in Spanish'. *Linguistic Inquiry* 13: 2. 297-312.
- Portner, Paul & Raffaella Zanuttini (2000). 'The force of negation in *wh* exclamatives and interrogatives'. In Laurence R. Horn & Yasuhiko Kato (eds.). *Negation and polarity: syntactic and semantic perspectives*. Oxford: Oxford University Press, 193-231.
- Portner, Paul & Raffaella Zanuttini (2005). 'The semantics of nominal exclamatives'. In R. Elugardo & R. J. Stainton (eds.) *Ellipsis and nonsentential speech*. Houten: Springer Netherlands, 57-67.

- Preminger, Omer (2008). (Im)perfect domains: yet another theory of syntactic movement. In Charles B. Chang & Hannah J. Haynie (eds.), *WCCFL 26: Proceedings of the 26th West Coast Conference on Formal Linguistics*. 402-410. Somerville, MA: Cascadilla Press.
- Preminger, Omer (2011). *Agreement as a fallible operation*. Doctoral thesis, Massachusetts Institute of Technology (MIT). Available at <http://ling.auf.net/lingbuzz/001303>. Last accessed 17.09.2013.
- Puskás, Genoveva (2000). *Word Order in Hungarian*. *Linguistik Aktuell/Linguistics Today* 33. Amsterdam: John Benjamins.
- Quine, Willard V. O. (1963). *From a Logical Point of View*. New York: Harper and Row.
- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik (1985). *A Comprehensive Grammar of the English Language*. London: Longman.
- Radford, Andrew (2000). 'The Syntax of Clauses'. In *Essex Research Reports in Linguistics* volume 33, 21-32.
- Radford, Andrew (2011). 'On the use of the complementizer that in English'. Ms., University of Essex.
- Ramchand, Gillian (1996). 'Questions, Polarity and Alternative Semantics'. Ms., Stanford University.
- Rett, Jessica (2008a). *Degree modification in natural language*. Doctoral dissertation, Rutgers, The State University of New Jersey.
- Rett, Jessica (2008b). 'A degree account of exclamation'. In Tova Friedman & Satoshi Ito (eds.) *Proceedings of the 18th Semantics and Linguistic Theory (SALT) conference*, volume 18, 601-618.
- Rett, Jessica (2011). 'Exclamation, degrees and speech acts.' *Linguistics and Philosophy* 34, 411-442.
- van Riemsdijk, Henk (2006). 'Free relatives: a syntactic case study'. In Martin Everaert & Henk van Riemsdijk (eds.) *The Blackwell Companion to Syntax*. Oxford: Blackwell.
- Rizzi, Luigi (1982). *Issues in Italian Syntax*. Dordrecht: Foris.
- Rizzi, Luigi (1990). *Relativized minimality*. Cambridge, MA: The MIT Press.
- Rizzi, Luigi (1996). 'Residual Verb Second and the Wh-Criterion'. *Parameters and functional heads: Essays in comparative syntax*, 63-90.
- Rizzi, Luigi (1997). 'The fine structure of the left periphery'. In Liliane Haegeman (ed.) *Elements of Grammar*. Dordrecht: Kluwer, 281-337.
- Rizzi, Luigi (2001). 'On the position "Interrogative" in the left periphery of the clause'. In Guglielmo Cinque & Giampaolo Salvi (eds.) *Current studies in Italian syntax 14: Essays offered to Lorenzo Renzi*. 286-296. Amsterdam: Elsevier.
- Rizzi, Luigi (2004) (ed.). *The structure of CP and IP : The Cartography of Syntactic Structures, Volume 2*. Oxford and New York: Oxford University Press.
- Rizzi, Luigi (2006). 'On the form of chains: criterial positions and ECP effects'. In Norbert Corver & Lisa Lai Shen Cheng (ed.) *Wh-movement: moving on. Current studies in Linguistics* 42. Cambridge, Massachusetts: MIT Press, 97-133.
- Rizzi, Luigi (2007). 'On some properties of criterial freezing'. In Vincenzo Moscati (ed.) *Studies in Linguistics*, Volume 1. Siena: CISCL Working Papers on Language and Cognition, 145-158.
- Rizzi, Luigi. (2009). 'Some consequences of criterial freezing'. Ms., University of Siena.
- Rizzi, Luigi (2012). 'Cartography, criteria and labeling'. Handout: Ealing 2012 - Blaise Pascal Lectures, September 11th-13th, Paris.
- Rizzi, Luigi & Uri Shlonsky (2006). 'Satisfying the subject criterion by a non subject: English locative inversion and Heavy NP shift'. In Mara Frascarelli (ed.) *Phases of interpretation*, 341-362.
- Rizzi, Luigi & Uri Shlonsky (2008). 'Strategies of subject extraction'. In Uli Sauerland & Hans-Martin Gärtner & (eds.) *Interfaces+ recursion= language: Chomsky's Minimalism and the view from syntax-semantics*, 115-160.

- Roberts, Ian & Anna Roussou (2003). *Syntactic change: a minimalist approach to grammaticalisation*. Cambridge: Cambridge University Press.
- Rooryck, Johan (1992). 'Negative and factive islands revisited'. *Journal of Linguistics* 28: 2, 343-373.
- Rooryck, Johan (1994). 'Generalized Transformation and the Wh-Cycle: Free Relatives as Bare Wh-CPs'. *Groeninger Arbeiten zur germanistischen Linguistik*, 37: 195-209.
- Rosenbaum, Peter S. (1967). *The Grammar of English Predicate Complement Constructions*. Cambridge, MA: MIT Press.
- Ross, John Robert (1967). *Constraints on Variables in Syntax*. Doctoral dissertation, Dissertation, Massachusetts Institute of Technology (MIT), Cambridge, MA.
- Ross, John Robert (1969). 'Guess who?' In Robert I. Binnick, Alice Davison, Georgia M. Green & Jerry L. Morgan (eds.) *Papers from the Fifth Regional Meeting of the Chicago Linguistic Society*, 252-286.
- Ross, John Robert (1970). 'On declarative sentences'. In Robert A. Jacobs & Peter S. Rosenbaum (Eds.), *Readings in English transformational grammar*, 222-272. Washington: Georgetown University Press.
- Ross, John Robert (1973). 'Slifting'. In Maurice Gross, Morris Halle & Marcel P. Schützenberger (eds.) *The Formal Analysis of Natural Languages: Proceedings of the First International Conference*. 's Gravenhage: Mouton de Gruyter, 133-169.
- Ross, John Robert (1984). 'Inner islands'. In Claudia Brugman & Monica Macaulay (eds.), *Proceedings of the 10th Annual Meeting of the Berkeley Linguistics Society*, 258-265.
- Roussou, Anna (1992). 'Factive complements and *wh*-movement in Modern Greek'. *University College London (UCL) Working Papers in Linguistics* 4, 123-147.
- Roussou, Anna (1994). *The syntax of complementizers*. Doctoral dissertation, University College London.
- Roussou, Anna (2000). 'On the left periphery: modal particles and complementisers'. *Journal of Greek Linguistics* 1, 65-94.
- Roussou, Anna (2010). 'Selecting complementizers.' *Lingua* 120: 3, 582-603.
- Russell, Bertrand (1905). 'On denoting'. *Mind* 14, 479-493.
- Sadock, Jerrold M. (1971). 'Queclaratives'. *Papers from the Seventh Regional Meeting of the Chicago Linguistic Society*. Chicago: Chicago Linguistic Society, 223-32.
- Sadock, Jerrold (1974). *Toward a Linguistic Theory of Speech Acts*. New York: Academic Press.
- Sadock, Jerrold M. and Zwicky, Arnold. M. (1985). *Speech act distinctions in syntax*. In Timothy Shopen (ed.) *Language typology and syntactic description, volume 1: Clause structure*. Cambridge: Cambridge University Press.
- Sæbø, Kjell (2007). 'A whether forecast.' In Peter Bosch, David Gabelaia & Jérôme Lang (eds.) *Logic, Language, and Computation*. Berlin: Springer, 189-199.
- Sag, Ivan A., Gerald Gazdar, Thomas Wasow & Steven Weisler (1985). 'Coordination and how to distinguish categories'. *Natural Language & Linguistic Theory* 3:2, 117-171.
- Schulz, Petra (2003). *Factivity: its nature and acquisition*. Berlin: Mouton de Gruyter.
- Searle, John R (1969). *Speech Acts*. Cambridge: Cambridge University Press.
- Shanon, Benny (1976). 'On the two kinds of presuppositions in natural language'. *Foundations of Language* 14, 247-249.
- Shlonsky, Ur (2006). 'Extended projection and CP cartography'. *Nouveaux cahiers de linguistique française* 27, 83-93.
- Shlonsky, Ur (2010). 'The cartographic enterprise in syntax'. *Language and Linguistics Compass* 4:6, 417-429.
- Shlonsky, Ur & Gabriela Soare (2011). 'Where's *why*?' *Linguistic Inquiry* 42:4, 651-669.
- Šimik, Radek (2008). The source of *wh*-morphology in questions and relative clauses. *Proceedings of the Conference of the Student Organisation of Linguistics in Europe (ConSOLE) XV*, 273-294.

- Simons, Mandy (2007). 'Observations on embedding verbs, evidentiality, and presupposition'. *Lingua* 117, 1034-1056.
- Speas, Maggy & Carol Tenny (2003). 'Configurational properties of point of view roles'. In Anna-Maria di Sciullo (ed.) *Asymmetry in grammar, volume 1: syntax and semantics*. Amsterdam: Benjamins, 315-344.
- Starke, Michal (2001). *Move dissolves into Merge: a theory of locality*. Doctoral dissertation. University of Geneva. Available at <http://ling.auf.net/lingbuzz/000002>. Last accessed 16.09.2013.
- Starke, Michal (2011). *Nanosyntax*. Lecture series for GIST (Generative Initiatives in Syntactic Theory), 7th -11th November 2011, Ghent, Belgium.
- Starke, Michal (2013). *Auxiliaries and structural gaps – current issues in Nanosyntax*. Lecture series for CRISSP (Center for Research in Syntax, Semantics & Phonology). 18th, 20th, 22nd March, Brussels, Belgium.
- Stowell, Timothy Angus (1981). *Origins of phrase structure*. Doctoral dissertation, MIT (Massachusetts Institute of Technology).
- Strawson, Peter Frederick (1950). 'On referring'. *Mind* 59, 320-344.
- Suñer, Margarita (1991). 'Indirect questions and the structure of CP: Some consequences'. In Héctor Campos & Fernando Martínez-Gil (eds.) *Current studies in Spanish linguistics*. 283-312.
- Suñer, Margarita (1993). 'About indirect questions and semi-questions'. *Linguistics and Philosophy* 16:1, 45-77.
- Suñer, Margarita (2000). 'The Syntax of Direct Quotes with Special Reference to Spanish and English'. *Natural Language and Linguistic Theory* 18, 525-578.
- Szabó Zoltán Gendler (2012). 'Compositionality'. In Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy (Winter 2012 Edition)*. Available at: <http://plato.stanford.edu/archives/win2012/entries/compositionality/>. Last accessed 12.09.2013.
- Szabolcsi, Anna (1997). 'Quantifiers in pair-list readings'. In Anna Szabolcsi (ed.) *Ways of Scope Taking*. Dordrecht: Kluwer Academic Publishers. 311-347.
- Szabolcsi, Anna & Marcel den Dikken (2002). *Islands*. In Lisa Cheng & Rint Sybesma (eds.) *The Second State-of-the-Article Book*. Berlin: Mouton de Gruyter, 213-40.
- Takahashi, Shoichi (2010). 'The hidden side of clausal complements'. *Natural Language and Linguistic Theory* 28, 343-380.
- Tamba, Harold & Khady Torrence (2013). 'Factive Relative Clauses in Wolof.' Ms.
- Thompson, Sandra A. & Anthony Mulac (1991). 'The discourse conditions for the use of the complementizer *that* in conversational English'. *Journal of Pragmatics* 15: 3, 237-251.
- Tredinnick, Victoria Ann (2005). 'On the semantics of free relatives with *-ever*.' Doctoral dissertation, University of Pennsylvania.
- Turnbull-Sailor, Craig (2007). *Syntactic Patterns of Embedded Wh-Clauses*. Master's thesis, University of Kansas.
- Uriagereka, Juan (1999). 'Minimal restrictions on Basque movements'. *Natural Language and Linguistic Theory* 17: 2, 403-444.
- Varlokosta, Spyridoula (1994). *Issues on Modern Greek Sentential Complementation*. Doctoral dissertation, University of Maryland, College Park.
- Verstraete, Jean-Christophe; Sarah D'Hertefelt & An Van linden (2012). 'A typology of complement insubordination in Dutch.' *Studies in Language* 36: 123-153.
- Villalba, Xavier (2004). 'Exclamatives and negation'. *Report de recerca, Grup de Gramàtica Teòrica*.
- Villalba, Xavier (2008). 'Exclamatives: a thematic guide with many questions and few answers. In Xavier Villalba (ed.) *Exclamatives at the Interfaces: Catalan Journal of Linguistics* 7, 9-40.

- Villalba, Xavier (2008) (ed.) *Exclamatives at the Interfaces: Catalan Journal of Linguistics* 7. Barcelona: Universitat Autònoma de Barcelona Servei de Publicacions.
- Warner, Anthony (1982). *Complementation in Middle English and the methodology of historical syntax: a study of the Wyclifite sermons*. London/Sydney: Croom Helm.
- Watanabe, Akira (1993). 'Larsonian CP recursion, factive complements, and selection'. *Proceedings of the 23rd Annual Meeting of the North East Linguistic Society*, Amherst, Massachusetts: GLSA, 523-537.
- Weir, Andrew (2009). *Article drop in English headlines*. Master's thesis, University College London.
- Weir, Andrew. (2012). 'Article drop in headlines: failure of CP-level Agree'. Ms, University of Massachusetts Amherst. Available at: <http://people.umass.edu/aweir/papers.html>. Last accessed 16.09.2013.
- Willis, David (2007) 'Specifier-to-head reanalyses in the complementizer domain: evidence from Welsh'. *Transactions of the Philological Society* 105:3, 432-480.
- Wilson, Deirdre & Dan Sperber (1988). 'Mood and the analysis of non-declarative sentences'. In Jonathan Dancy, J. M. E. Moravcsik & C.C.W Taylor (eds.) *Human agency: language, duty, and value*. Stanford, CA: Stanford University Press.
- Wittgenstein, Ludwig (1958). *Philosophical Investigations*. Oxford: Blackwell.
- Wurmbrand, Susi (2012). 'The timing of Merge: Deriving certain clause-linking mismatches'. Talk given at *Mismatches in Clause Linkage*, ZAS, Berlin, 13th-14th April 2012.
- Yamabe, Junji (1993). 'Clauses as prepositional objects'. *English Linguistics* 10, 119-132.
- Yoshida, Masaya, Honglei Wang & David Potter (2012). 'Remarks on "Gapping" in DP'. *Linguistic Inquiry* 43: 3, 475-494.
- Zanuttini Raffaella, Miok Pak & Paul Portner (2012). 'A syntactic analysis of interpretive restrictions on imperative, promissive, and exhortative subjects'. *Natural Language & Linguistic Theory* 30:4, 1231-1274.
- Zanuttini, Rafaella & Paul Portner (2003). 'Exclamative clauses: at the syntax-semantics interface'. *Language* 79, 39-81.

